

# Burnout in Canadian urology: Cohort analysis from the 2018 Canadian Urological Association census

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**Cite as:** Chan EP, Stringer LS, Forster A, et al. Burnout in Canadian urology: Cohort analysis from the 2018 Canadian Urological Association census. *Can Urol Assoc J* 2021;15(6Suppl1):S5-S15. <http://dx.doi.org/10.5489/cuaj.7232>

Appendix available at [cuaj.ca](http://cuaj.ca)

## Abstract

**Introduction:** Physician burnout is associated with medical error, patient dissatisfaction, and poorer physician health. Urologists have reported high levels of burnout and poor work-life integration compared with other physicians. Burnout rates among Canadian urologists has not been previously investigated. We aimed to establish the prevalence of Canadian urologist burnout and associated factors.

**Methods:** In the 2018 Canadian Urological Association census, the Maslach Burnout Inventory questions were assigned to all respondents. Responses from 105 practicing urologists were weighted by region and age group to represent 609 urologists in Canada. Burnout was defined as scoring high on the scales of emotional exhaustion or depersonalization. Demographic and practice variables were assessed to establish factors associated with burnout. Comparisons were made to the results of the 2016 American Urological Association census.

**Results:** Overall, 31.8% of respondents met the criteria for burnout. There was no effect of subspecialty practice or practice setting on burnout. On univariate analysis, rates of burnout were highest among urologists under financial strain (50.8%), female urologists (45.3%), and early-to-mid-career urologists (37.7–41.8%). Factors associated with demanding practices and poor work-life integration were predictive of burnout. A total of 12.2% of urologists reported seeking burnout resources and 54.0% wished there were better resources available.

**Conclusions:** Urologist burnout in Canada is lower than reported in other countries, but contributing factors are similar. Urologists who report demanding clinical practices (particularly in early-to-mid career), poor work-life integration, financial strain, and female gender may benefit from directed intervention for prevention and management of burnout. Burnout resources for Canadian urologists require further development.

## Introduction

The term “burnout” was first described by Freudenberg in 1980 and was defined as “the extinction of motivation or incentive, especially where one’s devotion to a cause or relationship fails to produce the desired results.”<sup>1</sup> This concept was further developed by Maslach et al<sup>2</sup> and has since been divided into three domains: emotional exhaustion (EE), depersonalization (DP)/cynicism, and low personal accomplishment (PA)/professional efficacy. These domains can each be assessed via the Maslach Burnout Inventory (MBI), a validated tool used in medical disciplines<sup>3</sup> and the corporate workspace<sup>4</sup> to evaluate burnout.

Burnout among physicians has been shown to be associated with lower-quality care, increased medical errors, and lower patient satisfaction.<sup>5–8</sup> It is associated with reduced physician productivity, increased physician turnover, decreased patient access, and heightened costs.<sup>9,10</sup> The annual cost of physician burnout in Canada due to early physician retirement and reduced clinical hours is estimated to be \$213 million.<sup>11</sup> Substance abuse, depression, suicidal ideation, poor self-care, and motor vehicle crashes are more prevalent among physicians experiencing burnout.<sup>12,13</sup> Given the significant consequences of physician burnout, Shanafelt et al began surveying American physicians and workers in other fields starting in 2011 to chronicle the changing rates of burnout and satisfaction with work-life integration among physicians relative to the general population.<sup>14</sup> In 2015, Shanafelt et al reported that burnout among urologists was 64%, which was significantly increased from 41% in 2011.<sup>15</sup> This report also indicated that urologists had the second worst work-life balance (behind neurosurgeons). Based on these findings, many urologists raised concerns regarding early retirement and potential substance abuse among practicing urologists<sup>1</sup> and the negative impact on prospective applicants.<sup>16</sup>

To further investigate the prevalence of burnout among urologists in the United States, North et al administered the

MBI to assess burnout among American urologists through the 2016 American Urological Association (AUA) census.<sup>17</sup> The results of this investigation identified burnout in 38.8% of practicing urologists, with 17.2% scoring high for EE and 37.1% for DP.<sup>17</sup> Specific practice features associated with burnout included more patient visits per week, younger age, non-pediatric or oncologic subspecialty, and practice size greater than two urologists.<sup>17</sup>

The data presented herein is the first study to examine the prevalence in burnout among Canadian urologists through the 2018 Canadian Urological Association (CUA) census. Through our analysis, we aim to identify trends, patterns, and predisposing factors for burnout among Canadian urologists.

## Methods

### Sample population

The CUA conducted a census survey from August 8 to October 10, 2018 that was completed online and received through electronic communications. Maslach Burnout Inventory questions were included for all respondents. The 105 practicing urologists who completed the CUA census were included in this study and weighted by region and age groups to represent 609 urologists in Canada. A total of 702 members received an email invitation to participate in the CUA census, which included practicing urologists, urology residents and fellows, non-urologist physicians, non-physician healthcare professionals, and researchers. Non-clinical members of the CUA were excluded from analysis in this study (n=93).

### Burnout

Burnout among urologists was measured using the MBI questionnaire, which consisted of 22 validated questions. The MBI questions were organized into the three burnout domains of EE, DP, and PA. This survey was designed in similar fashion to the 2016 AUA census to allow for comparison between results.<sup>17</sup> Consistency with the AUA census results and other studies was maintained through defining burnout as scoring high in the EE (score 27 or greater) or DP (score 10 or greater) categories.<sup>17-20</sup>

### Study measures

Data collected from the 2018 CUA census also included information on participant demographics, education and training, practice characteristics, burnout resource use, and personal factors. The CUA census questions pertaining to this study are included in the Appendix (available at [cuaj.ca](http://cuaj.ca)).

## Statistical analysis

Univariate inferential analyses were used to identify the association between urologist burnout and various demographic and professional characteristics. Participant responses were also evaluated in terms of the burnout domains: EE (high vs. low/moderate), DP (high vs. low/moderate), and PA (low vs. high/moderate). Statistical calculations were used to evaluate possible age group and gender effects on urologist burnout among different domains. For age group differences, respondents were divided into two groups based on the median age of respondents who met criteria for burnout, which was calculated at 46 years. Respondents aged up to 46 years were compared to respondents 47 years and greater. Where applicable, comparisons between the 2018 CUA and 2016 AUA census were performed to identify differences between the two census results. P-values were not generated for comparison between these groups due to the greater number of AUA respondents.

Pearson's Chi-squared test of independence was used in univariate analyses to identify whether burnout was associated with each of the demographic and professional characteristics individually and when adjusting for other characteristics in the study. This was also performed in our subgroup analyses. All tests were two-sided, with a type I error level of 0.05. All analyses were performed using standard statistical software IBM-SPSS® version 22.

## Results

### Sample population

A total of 105 practicing urologists completed the survey in full and were statistically weighted by region and age group to represent 609 urologists in Canada. The overall response rate of the survey was 19.5% (137/702) and the response rate for practicing urologists was 17.2% (105/609). Demographic and practice data are included in Table 1. General urology comprised 30.2% of respondents, followed by oncology (17.4%), endourology/stone disease (14.9%), and pediatrics (11.8%). Most respondents participated on call once a week (34.4%) or 2–3 days per week (29.9%).

Overall, 31.8% of respondents met the definition for burnout. Of the MBI domains, 8.0% reported high levels of EE, 31.8% reported high levels of DP, and 10.6% of respondents indicated low sense of PA (Table 2). Table 3 outlines factors evaluated in our univariate analysis.

**Table 1. Weighted demographic variables, practice characteristics, personal factors, and burnout resource use of participants who completed the 2018 CUA census**

Category	n	Percent $\pm$ MOE (%)
<b>Demographic factors</b>		
Gender		
Female	53	8.6 $\pm$ 4.1
Male	556	91.4 $\pm$ 4.1
Current marital status		
Single	13	2.2 $\pm$ 2.6
Single in a committed relationship	47	7.8 $\pm$ 2.8
Married	515	85.9 $\pm$ 5.3
Divorced	18	3.0 $\pm$ 3.5
Divorced and in a committed relationship	7	1.1 $\pm$ 1.8
How many children do you have?		
0/None	109	17.8 $\pm$ 4.6
1–2	176	28.9 $\pm$ 7.9
3–4	195	32.1 $\pm$ 8.7
5 or more	129	21.2 $\pm$ 7.1
What is your religious/faith background?		
Christianity	337	55.3 $\pm$ 7.7
Judaism	106	17.4 $\pm$ 5.6
Islam	17	2.8 $\pm$ 2.8
Buddhism	4	0.7 $\pm$ 1.2
Hinduism	12	2.0 $\pm$ 2.0
Other	133	21.9 $\pm$ 5.9
<b>Practice characteristics</b>		
Primary subspecialty		
General without subspecialty	184	30.2 $\pm$ 6.3
Oncology	107	17.5 $\pm$ 4.8
Pediatrics	72	11.8 $\pm$ 4.4
Endourology/stone disease	91	14.9 $\pm$ 5.8
FPMRS	35	5.8 $\pm$ 3.9
Erectile dysfunction	18	2.9 $\pm$ 3.0
Male infertility	14	2.2 $\pm$ 2.8
Renal transplantation	12	2.0 $\pm$ 2.6
Male genitourinary reconstruction	21	3.4 $\pm$ 3.9
Robotic surgery	19	3.1 $\pm$ 3.8
Laparoscopic surgery	37	6.0 $\pm$ 4.4
<b>How often are you on call?</b>		
Everyday	39	6.4 $\pm$ 3.5
Every other day	46	7.5 $\pm$ 4.6
2–3 days per week	182	29.9 $\pm$ 6.9
Once a week	210	34.4 $\pm$ 8.4
2–3 days per month	51	8.4 $\pm$ 5.6
Once a month	8	1.4 $\pm$ 1.5
Less than once a month	66	10.9 $\pm$ 4.6
Never on call	7	1.2 $\pm$ 1.0

CUA: Canadian Urological Association; FPMRS: female pelvic medicine and reconstructive surgery; MOE: margin of error.

**Table 1 (cont'd). Weighted demographic variables, practice characteristics, personal factors, and burnout resource use of participants who completed the 2018 CUA census**

Category	n	Percent $\pm$ MOE (%)
<b>Personal factors</b>		
How many times do you exercise on a weekly basis		
0/None	109	17.8 $\pm$ 4.6
1–2	176	28.9 $\pm$ 7.9
3–4	195	32.1 $\pm$ 8.7
5+	129	21.2 $\pm$ 7.1
Do you wish you had more time for hobbies outside of work?		
Yes	555	91.2 $\pm$ 4.6
No	54	8.8 $\pm$ 4.6
Would you describe your social life as active?		
Yes	340	55.8 $\pm$ 8.2
No	269	44.2 $\pm$ 8.2
How would you rate your personal physical health?		
Excellent	198	32.4 $\pm$ 8.9
Good	321	52.7 $\pm$ 8.6
Fair	70	11.5 $\pm$ 4.9
Poor	20	3.3 $\pm$ 3.0
Do you have any outstanding malpractice claims/lawsuits		
Yes	85	13.9 $\pm$ 6.6
No	524	86.1 $\pm$ 6.6
Are you under financial strain?		
Yes	117	19.3 $\pm$ 6.3
No	492	80.7 $\pm$ 6.3
<b>Burnout resource use</b>		
Are there resources available to manage stress and burnout within your organization?		
Yes	240	39.5 $\pm$ 8.6
No	132	21.7 $\pm$ 6.7
I don't know	236	38.8 $\pm$ 6.9
Are the resources available within your organization to manage stress and burnout adequate?		
Yes	89	14.7 $\pm$ 6.4
No	131	21.6 $\pm$ 6.3
I don't know	388	63.8 $\pm$ 8.4
Have you used available resources to manage stress and burnout?		
Yes	71	12.2 $\pm$ 6.6
No	514	87.8 $\pm$ 6.6
Do you wish there were more/better resources available to manage burnout within your organization?		
Yes	329	54.0 $\pm$ 8.7
No	280	46.0 $\pm$ 8.7

CUA: Canadian Urological Association; FPMRS: female pelvic medicine and reconstructive surgery; MOE: margin of error.

## Practice factors

There was no effect of subspecialty practice ( $p=0.979$ ), fellowship training ( $p=0.07$ ), or primary practice setting ( $p=0.432$ ) on burnout (Table 3). Urologists employed by others had higher rates of burnout than those who were partners in a private practice or in solo private practice ( $p=0.009$ ). Respondents who used electronic health records (EHR) exclusively reported higher rates of burnout ( $p=0.014$ ). Being on call more than once a week was associated with higher rates of burnout ( $p=0.002$ ). Urologists with a more demanding clinical practice reported higher rates of burnout, which was determined by: spending more than 15 minutes with a patient in a typical office visit ( $p=0.006$ ), working 61 or more clinical hours per week ( $p=0.003$ ), seeing 75 or less patient encounters per week ( $p=0.019$ ), and participating in a telemedicine program ( $p=0.003$ ) (Table 3).

## Personal factors

Female gender was associated with higher rates of burnout ( $p=0.028$ ) (Table 1). Almost all respondents (91.2%) indicated that they wished they had more time for hobbies outside of work (Table 1). Most reported that they had an active social life (55.8%) and excellent or good personal physical health (32.4% and 52.7%, respectively). A significant portion reported that they were under financial strain (19.3%) or had any outstanding malpractice claims/lawsuits (13.9%) (Table 1). Use of illicit substances and alcohol were reported at 2.1% and 82.4%, respectively.

Financial strain was associated with the highest rates of burnout (50.8%;  $p<0.001$ ). Outstanding malpractice claims/lawsuits was inversely associated with burnout ( $p=0.002$ ). Respondents who indicated that they wished for more time for hobbies had higher burnout rates ( $p<0.001$ ).

Burnout was not associated with personal physical health ( $p=0.191$ ), active social life ( $p=0.562$ ), or alcohol use ( $p=0.804$ ).

Burnout resources were available to 39.5% of respondents; 12.2% of respondents had used these resources but 21.6% indicated that resources within their organization were not adequate (Table 1). More than half (54.0%) wished there were more or better resources available to manage burnout within their organization. Urologists who used burnout resources ( $p=0.001$ ) or wished there were more/better burnout resources ( $p=0.013$ ) had higher burnout rates (Table 3).

## MBI domains

We examined the prevalence of three burnout domains identified by the MBI: EE, DP, and low PA. Top factors associated with each MBI domain are listed in Table 4. Common factors associated with both high levels of DP and low PA were female gender ( $p=0.028$  and  $p<0.001$ , respectively) and financial strain ( $p<0.001$  and  $p<0.001$ ). Non-Jewish/Christian faith was associated with high levels of EE ( $p<0.001$ ) and high levels of DP ( $p<0.001$ ).

## Comparisons of age groups

Respondents were divided into two groups based on the median age of respondents who met criteria for burnout (calculated at 46 years). Burnout was greater in the <46 years old group (42.6% vs 25.3%,  $p<0.001$ ), as were levels of high EE ( $p=0.024$ ) and DP ( $p<0.001$ ) (Table 2). Factors associated with burnout are significantly different between respondents who are 46 years of age and younger and respondents who are 47 years of age and older, as outlined in Table 5.

**Table 2. Respondent burnout based on Maslach Burnout Inventory with scoring on different burnout domains and subgroups generated from responses to the 2018 CUA census**

Group	Burnout			Emotional exhaustion			Depersonalization			Personal accomplishment		
	Yes	CI	p	High	CI	p	High	CI	p	Low	CI	p
CUA vs. AUA												
CUA (%)	31.8	(24.1, 39.5)	*	8.0	(3.2, 12.8)	*	31.8	(24.1, 39.5)	*	10.6	(6.7, 14.5)	*
AUA (%)	36.2	(33.5, 38.9)		16.5	(14.5, 18.5)		34.6	(32.0, 37.2)		8.2	(7.1, 10.1)	
Age groups												
<46 years old (%)	42.6	(36.5, 48.7)	<b>&lt;0.001</b>	11.2	(7.4, 15.0)	<b>0.024</b>	42.6	(36.5, 48.7)	<b>&lt;0.001</b>	11.5	(9.1, 14.0)	0.538
>47 years old (%)	25.3	(19.8, 30.8)		6.0	(3.0, 9.0)		25.3	(19.8, 30.8)		10.0	(7.0, 13.0)	
Gender												
Female (%)	45.3	(22.7, 38.5)	<b>0.028</b>	0.0	–	–	45.3	(22.7, 38.5)	<b>0.028</b>	49.1	(45.7, 52.5)	<b>&lt;0.001</b>
Male (%)	30.6	(37.2, 53.4)		8.7	(3.9, 13.5)		30.6	(37.2, 53.4)		6.9	(3.8, 10.0)	

Burnout was defined as scoring high on emotional exhaustion or depersonalization. Comparisons subgroups included CUA vs. AUA, age groups, and gender. \*Unable to compute p due to power differences between AUA and CUA surveys. AUA: American Urological Association; CI: 90% confidence interval; CUA: Canadian Urological Association.

**Table 3. Univariate analysis of variables associated with burnout among respondents to the 2018 CUA census**

Category	n	Percent	p
<b>Personal factors</b>			<b>0.001</b>
Age grouped	55	37.7%	
40 years old or under	59	41.8%	
41–48 years old	43	26.7%	
49–59 years old	37	23.0%	
Over 60 years old			
Gender			<b>0.028</b>
Male	170	30.6%	
Female	24	45.3%	
Marital status			<b>0.047*</b>
Other	18	21.4%	
Married	166	32.2%	
What is your religious/faith background?			<b>&lt;0.001</b>
Judaism	36	34.0%	
Christianity	83	24.7%	
Other	74	44.6%	
How many children do you have?			<b>&lt;0.001*</b>
0/None	7	9.7%	
1–2	44	43.5%	
3–4	45	21.1%	
<b>Practice factors</b>			
Please select the primary subspecialty area in which you practice.			0.979
General without subspecialty	59	32.1%	
Subspecialty	135	31.8%	
Please select your primary practice setting			0.432
Academic medical center/medical school	92	30.4%	
Other	102	33.3%	
Fellowship status			0.070
No fellowship	53	26.9%	
Fellowship	141	34.2%	
Employment status			<b>0.009</b>
I am employed by others	73	39.2%	
I am a partner or in solo practice	121	28.6%	
No. of urologists in your practice			0.075
3 or less	79	28.2%	
4 or more	115	35.0%	

\*Non-clinical activities (e.g., administration, teaching, research, etc.). CUA: Canadian Urological Association.

**Table 3 (cont'd). Univariate analysis of variables associated with burnout among respondents to the 2018 CUA census**

Category	n	Percent	p
<b>Practice factors (cont'd)</b>			
Do you use an electronic health record (EHR) system to record patient information?			<b>0.014</b>
I use EHR only	131	35.6%	
I use both EHR and paper records/I use paper records only	63	26.1%	
Number of vacation weeks			0.813
5 or less	88	32.4%	
6 or more	106	31.5%	
How often are you on call?			<b>0.002</b>
More than once a week	102	38.3%	
Once a week or less	92	26.8%	
<b>Clinical practice</b>			
Number of minutes spent with a patient in a typical office visit			<b>0.006</b>
Less than 15 min	137	29.0%	
Greater than 15 min	56	41.5%	
Number of hours spent on clinical activities in a week			<b>0.003</b>
60 or less	110	27.7%	
61 or more	84	39.6%	
Number of patient visit/encounters per week			<b>0.019</b>
75 or less	68	38.9%	
76 or more	126	29.0%	
Percent of patient visits/encounters by female patients			<b>&lt;0.001</b>
29% or less	95	44.6%	
30% or more	99	25.0%	
Number of hours spent on non-clinical activities* in a week			0.163
9 or less	63	28.4%	
10 or more	131	33.9%	
Have you participated in any quality reporting programs over the past 12 months?			0.056
Yes	99	28.7%	
No/I don't know	95	36.0%	
Do you participate in a telemedicine program?			<b>0.003</b>
No	138	28.9%	
Yes, in less than 10% of my patients	56	42.4%	
<b>Burnout factors</b>			
Are the resources available within your organization to manage stress and burnout adequate?			0.968
Yes	77	32.0%	
No/I don't know	117	31.8%	

\*Non-clinical activities (e.g., administration, teaching, research, etc.). CUA: Canadian Urological Association.



**Table 3 (cont'd). Univariate analysis of variables associated with burnout among respondents to the 2018 CUA census**

Category	n	Percent	p
<b>Burnout factors (cont'd)</b>			
Have you used available resources to manage stress and burnout?			<b>0.001</b>
Yes	34	47.9%	
No	149	29.0%	
Do you wish that there were more/better resources available to manage burnout within your organization?			<b>0.013</b>
Yes	119	36.2%	
No/I don't know	75	26.8%	
How would you rate your personal physical health?			0.191
Excellent/good	160	30.8%	
Fair/poor	34	37.8%	
Do you wish you had more time for hobbies outside of work?			<b>&lt;0.001*</b>
Yes	190	34.2%	
No	4	7.5%	
Would you describe your social life as active?			0.562
Yes	105	30.9%	
No	89	33.1%	
Are you under financial strain?			<b>&lt;0.001</b>
Yes	60	50.8%	
No	134	27.3%	
Do you have any outstanding malpractice claims/lawsuits?			<b>0.002</b>
Yes	15	17.6%	
No	179	34.2%	
Do you drink alcohol?			0.804
Yes	161	32.1%	
No	33	30.8%	
No	137	30.4%	

\*Non-clinical activities (e.g., administration, teaching, research, etc.). CUA: Canadian Urological Association.

## Gender comparisons

Burnout rates reported by female urologists were significantly higher than male respondents ( $p=0.028$ ) (Table 2). Female urologists also reported higher levels of DP ( $p=0.028$ ) and low PA ( $p<0.001$ ) compared to their male colleagues (Table 2). None of the female urologists who completed the survey indicated high levels of EE.

All female census respondents who met criteria for burnout were subspecialized in pediatric urology ( $n=24$ ). Female urologists who did not meet the criteria for burnout included general urologists ( $n=9$ ), female pelvic medicine

and reconstructive surgery urologists ( $n=9$ ), pediatric urologists ( $n=8$ ), and endourologists ( $n=3$ ). Factors associated with burnout in female and male respondents are outlined in Table 5.

## Comparison to 2016 AUA census

Rates of burnout, EE, and DP were lower among 2018 CUA census respondents compared with 2016 AUA census respondents (Table 2). Factors more often associated with burnout in CUA respondents include female gender ( $p<0.001$ ) and  $>60$  hours worked per week ( $p=0.031$ ) (Table 5). Factors associated with a lower prevalence of burnout among CUA respondents compared to AUA respondents included subspecialty practice ( $p<0.001$ ),  $>100$  patient encounters per week ( $p<0.001$ ), male gender ( $p<0.001$ ),  $>75$  patient encounters per week, and  $\leq 60$  total hours worked per week ( $p=0.031$ ). In terms of age groups, respondents aged 45–54 years in the 2016 AUA census were most likely to have burnout (43.4%) compared to the 55–65 years group (17.4%) in the 2018 CUA census ( $p<0.001$ ).

## Discussion

Burnout in urology received considerable attention following the 2015 report by Shanafelt et al,<sup>15</sup> which indicated a 64% burnout rate among urologists. This finding, however, was based on 119 respondents, representing 1.7% of those invited to complete the survey, with questionable generalizability due to small sample size and possible response bias, as the primary survey focus was on burnout. To further evaluate the prevalence of urologist burnout and associated factors, North et al randomly assigned half of the respondents of the 2016 AUA census ( $n=1126$ ) to complete the MBI.<sup>17</sup> Using matrix sampling to represent the entire cohort of 2301 who completed the census, 38.8% of urologists met the criteria for burnout. A lower burnout prevalence (31.8%) is reported in this study among Canadian urologists, which is driven by high levels of DP and associated primarily with demanding clinical practices, early-to-mid career practice, poor work-life integration, financial strain, and female gender.

## Burnout domains

Emotional exhaustion (EE) refers to feelings of being emotionally overextended and exhausted by one's work.<sup>2</sup> Canadian urologists reported lower rates of EE (8.0% vs. 17.2%) compared to the 2016 AUA census data. EE among Canadian urologists was associated with working 50 or

**Table 4. Most prevalent factors associated with high emotional exhaustion, high depersonalization, or low personal accomplishment among respondents to the 2018 CUA census**

Category	Percent	p
Emotional exhaustion		
41–48 years old	21.8	0.001
Fair/poor physical health	18.7	0.001
Non-Jewish/Christian faith	17.4	<0.001
≥50 clinical hours/week	16.3	0.001
Not socially active	14.8	<0.001
Depersonalization		
Financial strain	50.9	<0.001
Use of stress/burnout resources	48.2	0.001
Female gender	44.8	0.028
Non-Jewish/Christian faith	44.6	<0.001
≤29% visits by female patients	44.5	<0.001
Low personal accomplishment		
Female gender	49.1	<0.001
Telemedicine use	28.9	<0.001
Financial strain	20.8	<0.001
>15 min/patient	19.2	<0.001
≤75 patients/week	18.7	<0.001

CUA: Canadian Urological Association.

more clinical hours per week. This is consistent with North et al, who reported that American urologists with more demanding clinical practices were more likely to report burnout.<sup>17</sup> Perceived job demands and emotional labor has also been associated with EE in medical residents and specialists.<sup>21</sup> Additionally, EE was associated with personal factors, including younger age (41–48 years old), fair/poor physical health status, religious affiliation, and lack of social activity. Interventions to improve physical health and social activity may reduce burnout in urologists affected primarily by EE.

Depersonalization (DP) measures an unfeeling and impersonal response towards recipient's of one's service, care, treatment, or instruction.<sup>2</sup> Maslach had previously described DP among professionals as a coping mechanism for stress.<sup>22,23</sup> This is consistent with findings that DP among internal medicine specialists and residents was greater in those who reported higher emotional labor and more hours worked per week.<sup>21</sup> DP as distancing against emotional labor may be harmful to relationships with colleagues and patients.<sup>24</sup> Canadian urologists reported lower rates of DP (31.8% vs. 37.1%) compared to the respondents from the 2016 AUA census.<sup>17</sup> High levels of DP among CUA respondents was associated with greater likelihood of seeking burnout resources and support, which is compatible with DP (or cynicism) as a form of adaptive response to burnout.

**Table 5. Most prevalent factors associated with burnout among respondents to the 2018 CUA census based on subgroup analyses, including age groups (<46 years vs. ≥47 years old), gender (male vs. female), and comparison with 2016 AUA census**

Category	Percent (%)	p
<b>Age groups</b>		
<46 years old		
Having 0 children	100	<0.001
Non-academic training center	70.6	<0.001
Being partner in a practice	67.1	<0.001
Working ≤9 non-clinical hours	69.8	<0.001
≤3 or less urologists in practice	60.8	0.025
≥47 years old		
Academic center	70.7	<0.001
>15 min/patient	64.9	0.004
≤75 patients/week	72.1	<0.001
Telemedicine use	66.1	0.002
Christian faith	60.2	0.007
<b>Gender</b>		
Female		
Greater than 15 min/patient	30.4	<0.001
<30 patients/clinic	17.9	0.021
Financial strain	28.2	0.001
Male		
Married	89.8	0.001
Non-Christian religion	93.7	0.003
<b>Comparison with AUA</b>		
Higher percentage burnout		
Female gender	34.3	<0.001
>60 hours/week	39.6	0.031
Lower percentage burnout		
Subspecialty practice	31.8	<0.001
Male gender	30.6	<0.001
>75 encounters/week	29.0	<0.001
≤60 total hours/week	27.7	0.031

AUA: American Urological Association; CUA: Canadian Urological Association.

Low personal accomplishment (PA) is described as decreased feelings of competence and successful achievement in one's work,<sup>2</sup> and was 10.6% among respondents to the 2018 CUA census. Respondents reporting female gender and financial strain were associated with both DP and low sense of PA. These factors together may represent a higher risk group requiring additional burnout prevention and organizational support.

### Demanding clinical practice

Having a more demanding clinical practice is associated with burnout among urologists<sup>17,25,26</sup> and other surgical specialties.<sup>27</sup> In this study, respondents who spent more

time with patients (>15 minutes per patient), spent more hours on clinical activity ( $\geq 61$  hours per week), or participated in telemedicine programs had higher rates of burnout. Counterintuitively, seeing 75 or fewer patients per week was also associated with higher rates of burnout, which may be explained by management of more complex patients that require more time for counselling and treatment, or lack of available resources to see patients in an appropriate timeframe leading to long wait times.

Practice factors indicative of reduced autonomy, including being employed by others (vs. solo practice or partnership) and call frequency (more than once a week), were associated with higher rates of burnout among CUA census respondents. Lack of autonomy is a known causative factor for burnout, and may manifest through restrictive hospital bylaws, lack of personal freedom due to clinical responsibilities, or participation in a group practice.<sup>27,28</sup> Exclusive use of EHR systems for clinical work was also associated with burnout, an effect that has been well-described and believed to be related to the increased time and effort spent on data entry, interference with work-life balance, and loss of control of workload.<sup>29-31</sup>

Subspecialty practice and practice setting (academic vs. other) were not associated with burnout in this study. This is in contrast with findings from the 2016 AUA census, which identified that general urologists were at higher risk of burnout, and that subspecialty practice in urologic oncology and pediatrics were protective against burnout.<sup>17</sup> Prior AUA studies have similarly identified that academic practice and fellowship training are associated with increased job satisfaction.<sup>32</sup> The difference between the CUA and AUA census findings may be related to inherent practice differences between urologists working in Canada and the United States. General urologists in the United States may have a more office-based practice with higher patient volume and lower acuity. This leads to time-consuming case loads and high overhead costs in a fee-for-service model when compared to academic subspecialists who are predominantly salary-based. Furthermore, Canadian urologists may experience less disparity in clinical hours, financial compensation, and patient volumes across specialties and practice settings in contrast to American urologists.

## Work-life integration

The findings of this study are consistent with reports by Shanafelt et al that urologists have poor satisfaction with work-life integration.<sup>3,15</sup> Almost all 2018 CUA census respondents indicated that they wished they had more time for hobbies. Fortunately, social and physical health are maintained among Canadian urologists and are noted

protective factors against burnout.<sup>33</sup> The current study also identifies that there is need for improvement in the availability and quality of burnout resources within organizations, as more than half of respondents expressed a desire for more or better resources and respondents that met the criteria for burnout reported higher rates of seeking burnout resources.

While a minority of respondents reported financial strain (19.3%), those that did had the highest rates of burnout (50.8%) across any individual variable. Financial strain has consistently been demonstrated as a risk factor for burnout,<sup>1,32,33</sup> and in this study correlated with high levels of DP and low sense of PA. Additional organizational training and resources for financial planning, particularly for early-career urologists, may help to reduce the risk of developing financial strain.

## Burnout among early-to-mid-career urologists

Previous studies have identified that urologists who were younger (less than 45 years)<sup>26,34</sup> or mid-career<sup>17,33</sup> (in practice for 11–25 years) experience higher rates of burnout. Our data is consistent with these findings; respondents in early-to-mid career (less than 46 years old) reported higher rates of burnout than their older colleagues (Table 2). Burnout in early-career urologists, especially those practicing at academic institutions, has been attributed to appointment to multiple administrative roles,<sup>1,26</sup> perceived lack of autonomy, and frustration at work.<sup>35</sup>

In this study, early-to-mid-career urologists working in non-academic centers or with fewer urologists reported higher rates of burnout. This is consistent with findings of higher burnout among young private urologists in Ireland and the United Kingdom.<sup>26</sup> Early-to-mid-career community urologists may lack institutional resources afforded by their academic counterparts and take more calls divided among a smaller group of urologists. Furthermore, mid-career physicians are known to work longer hours and take more calls compared to their older counterparts and have the highest rates of emotional exhaustion and burnout. This results in increased contemplation about pursuing a career outside of clinical medicine or leaving medicine altogether.<sup>36</sup> Community practice may also contribute to burnout due to a perceived lack of opportunities for collaboration and less exchange of ideas that may facilitate personal and career development.<sup>17</sup>

The association of burnout in older urologists (>47 years old) with employment at an academic institution may be related to the continued requirements of research, teaching, and administration that influence work-life balance. Overall, burnout rates among late-career urologists and other physicians have been consistently low. The protective



effect of age is attributed to seniority, clinical autonomy, being pleased with life accomplishments, and achieving work-life balance.<sup>17,26,34-36</sup> There may also be a survivorship bias where physicians who experience significant burnout by mid-career depart from clinical practice.

### Burnout in female urologists

Female gender has not consistently been associated with burnout in studies of urologists. Analysis of the 2016 AUA census did not identify that female gender was associated with burnout compared to males ( $p=0.132$ ), but their rates of female burnout were lower than that reported in this study (42.9% vs. 45.3%).<sup>17</sup> Similarly, a study in Ireland and the United Kingdom did not identify that female gender was associated with burnout ( $p=0.38$ ), with rates lower than identified in this study (42.1% vs. 45.3%). They did, however, identify that female urologists were more likely to discuss burnout with other colleagues ( $p<0.01$ ).<sup>26</sup> Females general surgeons have been found to have higher job satisfaction than their male colleagues on multivariate analysis (odds ratio [OR] 4.6).<sup>35</sup> In contrast, Dyrbye et al found that female physicians were less likely to be satisfied with work-life balance with higher rates of burnout in late career compared to men.<sup>36</sup>

In this report, female urologists reported higher rates of burnout than their male colleagues. This was driven by higher rates of DP and low sense of PA. Practice factors associated with burnout among female respondents included spending more time with patients and seeing fewer patients per clinic (Table 5). This is consistent with findings from a survey on Canadian female urologists by Hird et al, who revealed that the greatest sources of career dissatisfaction were seeing more time-consuming patients and managing healthcare resource constraints.<sup>37</sup> A confounder in the current study is that all female respondents that met the criteria for burnout practiced pediatric urology as their primary subspecialty, and the practice factors that were associated with female burnout are common in pediatric urology practice.

Financial strain was associated with burnout in female respondents but not among male respondents. This may be due to the gender pay gap that exists, where women are remunerated less than their male colleagues in urology<sup>38</sup> and other specialties in medicine.<sup>39,40</sup> In Canada, urology ranks the most disparate in gross payments to male vs. female physicians (ratio of 1.6).<sup>39</sup> These gender-based income disparities remain true even after adjustment for age, years in practice, patient factors, and surgical specialty.<sup>41</sup> This may be explained by the higher proportion of female specific procedures (i.e., slings) performed by

female urologists,<sup>42</sup> and the poorer compensation for female-specific procedures when compared to male-specific procedures of similar complexity.<sup>43</sup> Hird et al further exposed the financial challenges experienced by female urologists with respect to maternity leave, unequal compensation, fewer referrals for surgical cases, challenges with respect to salary negotiation, and greater administrative work without associated compensation.<sup>37</sup>

Given that only nine female urologists responded to the 2018 CUA census (which was statistically weighted to 53 female urologists), further assessment of burnout among female urologists in Canada is necessary. Hird et al evaluated career satisfaction, personal and professional challenges, and practice barriers among female urologists in Canada, with 60 women completing the survey (75% response rate).<sup>37</sup> They identified that 40% of women had difficulty finding mentorship in training, 65% experienced gender discrimination, and that women in community practice were more likely to experience discrimination. Of concern, 30.2% reported a pregnancy-related complication triggered by their work.

Hird et al recommended that supporting wellness among female urologists requires focused efforts in supporting women on maternity leave, improving mentorship, and prioritizing urology leadership initiatives.<sup>37</sup> Leaders and organizations, such as the CUA, can help address disparities in support, opportunities, and discrimination.<sup>44</sup> A shift in the culture of practice to become more supportive of women balancing professional and personal demands is necessary. Initiatives that improve female mentorship, child care, and family leave represent areas of opportunity that can be targeted by local and national organizations.<sup>44</sup>

### Comparison of CUA and AUA census findings

Canadian urologists reported lower rates of burnout, EE, and DP compared to their American counterparts (Table 2). Having a more demanding clinical practice and female gender were associated with higher rates of burnout among CUA census respondents when compared to AUA census respondents. Canadian urologists also reported that subspecialty practice and working more efficiently (seeing more patients per week but working fewer hours per week) resulted in a lower proportion of burnout. This is consistent with the protective factors of reduced time spent at work and achieving work-life integration. Differences between these groups may reflect differences between the CUA and AUA census in terms of geography, time, and stratification variables, as well as the different practice and remuneration styles that exist between the two countries.

## Next steps

The most recent iteration of the Shanafelt et al survey study published in 2019 identified that urology ranked sixth among specialties reporting burnout, but respondents were most dissatisfied with work-life integration.<sup>3</sup> Initiatives to prevent and manage burnout among Canadian urologists are therefore necessary. A review by Franc-Guimond et al described ways the CUA can address burnout among Canadian urologists, including the promotion of physician healthcare programs, establishing wellness committees, distributing regular wellness surveys, and conducting educational seminars and workshops to trainees and practicing physicians on wellness and burnout.<sup>1</sup> Some of these initiatives are already in place, including a recent Twitter journal club on burnout,<sup>45</sup> editorials from leaders in urology,<sup>46</sup> and educational forums at the 2019 CUA annual meeting.<sup>47</sup> Additional resources include those provided by the American Medical Association (STEPS Forward),<sup>48</sup> Canadian Medical Association,<sup>49</sup> and American College of Surgeons.<sup>50</sup>

This study also identifies groups within Canadian urology that may benefit from directed interventions to reduce burnout, including early-to-mid-career urologists, urologists with demanding clinical practices, female urologists, and urologists experiencing financial strain. We also report that urologists experiencing burnout may have inadequate or inaccessible support resources within their organizations. Specific attention should be made towards improving mentorship resources, as well as accessibility and normalization of childcare and family leave for female urologists. Burnout among Canadian urology trainees continues to require further investigation.

## Limitations

This study is limited by a low number of respondents. In particular, there were few female respondents, which may introduce a selection bias skewed towards the experiences of female pediatric urologists. Despite the low number of respondents, our response rate is similar to that of the 2016 AUA census<sup>17</sup> and our results are comparable to findings of larger studies of burnout in urology.<sup>17,26</sup> Furthermore, our findings are statistically weighted by age and region of Canadian urologists to reduce the risk of selection bias.

## Conclusions

Urologists continue to experience burnout at rates that are concerning, though lower than previously identified. The present study is the first to evaluate burnout among Canadian urologists, which is less prevalent than among

our colleagues in the United States,<sup>17</sup> Germany,<sup>34</sup> Ireland, and the United Kingdom,<sup>26</sup> though the factors that contribute to burnout are similar between countries. We identify that burnout among Canadian urologists is driven primarily by high work volume (particularly in early-to-mid career), poor work-life integration, financial strain, and female gender.

Burnout can have devastating effects on physician health, delivery of care, and career longevity. There is no panacea for the treatment of burnout, but this report has identified that urologist burnout may be associated with certain demographic and work factors. To best address burnout within our specialty, we must further identify and investigate groups that are at highest risk and tailor interventions to help improve their personal and professional wellbeing at the individual institution level, as well as at the organizational level, including the CUA. We must also direct our efforts into preventing burnout in our workforce and among urology trainees to ensure positive working environments for our future colleagues.

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