

# Surgeons disciplined by regulatory bodies in Canada between 2000 and 2017

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## SUMMARY

Identifying characteristics of disciplined surgeons is important for public safety. A database of all physicians disciplined by a Canadian provincial medical regulatory authority (College of Physicians and Surgeons) between 2000 and 2017 was constructed, and comparisons between surgeons and other physicians were undertaken. Of 1100 disciplined physicians, 174 (15.8%) were surgeons. Obstetrics and gynecology was the specialty with the most disciplined surgeons (57 of 174 [32.8%]), followed by general surgery (48 of 174 [27.6%]). The overall disciplinary rate for surgeons was higher than for other physicians (12.59, 95% confidence interval [CI] 10.69–14.83 v. 9.85, 95% CI 8.88–10.94 cases per 10000 physician-years,  $p = 0.013$ ). Even after adjusting for surgeon age, sex, international medical graduation and years in practice, surgeons remained more likely than other physicians to be disciplined for standard of care issues (55.6%, 95% CI 46.6–64.2 v. 38.7%, 95% CI 32.6–45.2,  $p < 0.001$ ).

Physician discipline through self-regulation is important for the medical profession to ensure patient safety and improve quality of care. Estimated rates of disciplinary action against licensed physicians ranges from 0.3% to 2.8%.<sup>1</sup> Although disciplinary rates are low, any misconduct has the potential to compromise patient safety and quality of care. In Canada, provincial medical regulatory authorities, known as the Colleges of Physicians and Surgeons (CPS), govern standards of professional practice, and rulings of physician discipline are publicly available. We designed a national database using CPS data to compare surgeons with other physicians, and to determine areas of practice that could benefit from closer evaluation and targeted preventive strategies.

Canadian physicians disciplined between Jan. 1, 2000, and Dec. 31, 2017, were identified from the CPS. Relevant demographic information was collected, including sex, type of practice licence, location of medical training (Canadian/US-trained versus international medical graduate [IMG]), and medical specialty. Information on the offenses and penalties incurred was also collected. The Canadian Institute of Health Information was used to identify the total number of practising physicians in the country during the study period.<sup>2</sup>

Unadjusted comparisons between surgeons and other physicians were undertaken using  $\chi^2$  and Student  $t$  tests for categorical and continuous variables, respectively. For the primary analyses, we identified 11 types of offenses and 8 types of penalties, and created indicator variables for each. These were used as the outcome for logistic regression. Generalized estimating equations were selected to estimate the percent of cases with a given offense/penalty for surgeons compared with other physicians, while allowing for covariate adjustment (gender, year of study, years in the profession, and IMG status). Secondary analyses of yearly and aggregate disciplinary rates were performed using negative binomial regression. We report cases per 10000 physician years with 95% confidence intervals (CIs). The threshold for statistical significance was  $\alpha = 0.05$ . Statistical analyses were performed using R software, version 3.1.2.

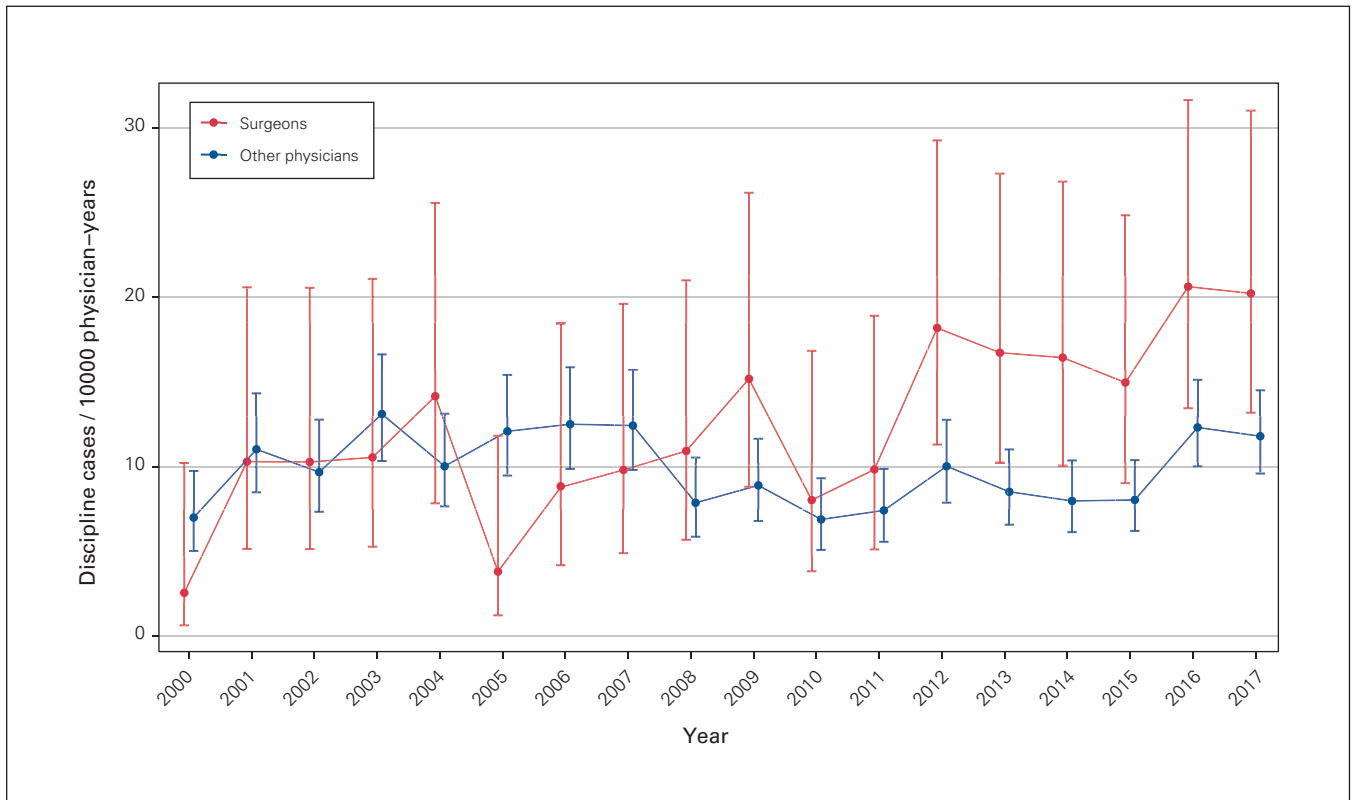


Fig. 1. Disciplinary rates for all cases by year, for surgeons compared with other physicians. Error bars denote 95% confidence intervals.

Table 1. Baseline characteristics of disciplined surgeons and other physicians (2000–2017)

Characteristic	No. (%)*		p value
	Surgeons	Other physicians	
Total cases	199/1269 (15.7)	1070/1269 (84.3)	—
Total physicians	174/1100 (15.8)	926/1100 (84.2)	—
Sex			0.015
Male	161/174 (92.5)	794/926 (85.7)	
Female	13/174 (7.5)	132/926 (14.3)	
Licence			0.246
Independent	170/174 (97.7)	915/926 (98.8)	
Resident	4/174 (2.3)	11/926 (1.2)	
Medical training			0.150
North American	124/174 (71.3)	608/926 (65.7)	
IMG	50/174 (28.7)	318/926 (34.3)	
Years from medical school graduation to disciplinary action, mean ± SD	31.4 ± 11.2	29.3 ± 11.4	0.026
No. of disciplinary cases†			0.48
1	156/199 (78.4)	820/1070 (76.6)	
2	30/199 (15.1)	172/1070 (16.1)	
3	9/199 (4.5)	57/1070 (5.3)	
4	4/199 (2)	0	
5	0	15/1070 (1.4)	
6	0	6/1070 (0.6)	

IMG = international medical graduate; SD = standard deviation.

\*Unless indicated otherwise.

†Nineteen surgeons had 2 or more disciplinary cases: 15 had 2 cases, 3 had 3 cases and 1 had 4 cases. Eighty-six other physicians had 2 or more disciplinary cases: 86 had 2 cases, 19 had 3 cases, 3 had 5 cases and 1 had 6 cases.

**DISCIPLINARY FINDINGS**

From 2000 to 2017, there were 1269 disciplinary cases involving 1100 different physicians. There were 199 disciplinary cases attributed to 174 surgeons, and 1070 disciplinary cases attributed to 926 other physicians (Figure 1 and Table 1). Nineteen (11%) surgeons underwent multiple disciplinary proceedings. Over the study period, surgeons accounted for 15.7% of all disciplined physicians, despite accounting for just 12% of all physicians with a licence to practise in Canada ( $p < 0.001$ ).

Most surgeons disciplined were male (92.5%) and independent practitioners (97.7%). On average, disciplinary action for surgeons occurred 31.4 years after medical school graduation. Obstetrics was the most frequently disciplined surgical subspecialty (57 of 174 [32.8%]), followed by general surgery (48 of 174 [27.6%]) (Table 2). The proportion of surgeons disciplined in both of those specialties was higher than the proportion of those specialists with a licence to practise in Canada during the study period (Table 3).

Disciplinary rates of surgeons have exceeded that of other physicians consistently since 2008 (Table 4). The

**Table 2. Baseline characteristics of disciplined surgeons, by specialty (2000–2017)**

Characteristic	No. (%)*		
	Obstetrics and gynecology	General surgery	Other surgery
Total	57/174 (32.8)	48/174 (27.6)	69/174 (39.7)
Sex			
Male	51/57 (89.5)	45/48 (93.8)	65/69 (94.2)
Female	6/57 (10.5)	3/48 (6.2)	4/69 (5.8)
Licence			
Independent	57/57 (100)	47/48 (98.8)	66/69 (95.7)
Resident	0	1/48 (2.2)	3/69 (4.3)
Medical training			
North American	34/57 (59.6)	35/48 (72.9)	55/69 (79.7)
IMG	23/57 (40.4)	13/48 (27.1)	14/69 (20.3)
Years from medical school graduation to disciplinary action, mean ± SD	31.9 ± 10.6	31.4 ± 11	30.8 ± 12
No. of disciplinary cases/physician			
1	50/57 (87.7)	43/48 (89.6)	65/69 (94.2)
2	6/57 (10.5)	5/48 (10.4)	3/69 (4.3)
3	1/57 (1.8)	0	0
4	0	0	1/69 (1.4)
5	0	0	0
6	0	0	0

IMG = international medical graduate; SD = standard deviation.  
\*Unless indicated otherwise.

**Table 3. Proportion of disciplined surgeons, by specialty (2000–2017)**

Specialty	Total no. of surgeons disciplined	No. (%)*		p value
		Proportion of specialty surgeons among all surgeons disciplined	Proportion of specialty surgeons among all practising surgeons in 2017†	
Obstetrics and gynecology	57	57/174 (32.8)	2315/10383 (22.3)	< 0.001
General surgery	48	48/174 (27.6)	2055/10383 (19.8)	0.011
Orthopedic surgery	27	27/174 (15.5)	1671/10383 (16.1)	0.834
Ophthalmology	11	11/174 (6.3)	1301/10383 (12.5)	0.014
Urology	10	10/174 (5.7)	728/10383 (7.0)	0.516
Plastic surgery	8	8/174 (4.6)	614/10383 (5.9)	0.465
Otolaryngology	7	7/174 (4.0)	792/10383 (7.6)	0.075
Neurosurgery	4	4/174 (2.3)	340/10383 (3.3)	0.472
Vascular surgery	2	2/174 (1.1)	202/10383 (1.9)	0.447

\*Unless indicated otherwise.  
†There was found to be no significant difference in the national proportion of surgeons by year, thus the 2017 statistics were chosen to be a representative sample.

overall disciplinary rate for surgeons was higher than for other physicians (12.59, 95% CI 10.69–14.83 v. 9.85, 95% CI 8.88–10.94 cases per 10000 physician-years,  $p = 0.013$ ).

After adjustment, surgeons were more likely than other physicians to be disciplined for standard of care issues (55.6%, 95% CI 46.6–64.2 v. 38.7%, 95% CI 32.6–45.2,

**Table 4. Disciplinary rates for surgeons versus other physicians, by year (2000–2017)**

Year	Surgeons			Other physicians			p value
	Total surgeons	Cases	Rate* (95% CI)	Total physicians	Cases	Rate* (95% CI)	
2000	7826	2	2.56 (0.64–10.22)	49977	35	7.00 (5.03–9.75)	0.166
2001	7769	8	10.3 (5.15–20.59)	50777	56	11.03 (8.49–14.33)	0.856
2002	7781	8	10.28 (5.14–20.56)	51631	50	9.68 (7.34–12.78)	0.875
2003	7584	8	10.55 (5.28–21.09)	51870	68	13.11 (10.34–16.63)	0.561
2004	7769	11	14.16 (7.84–25.57)	52843	53	10.03 (7.66–13.13)	0.298
2005	7866	3	3.81 (1.23–11.83)	53756	65	12.09 (9.48–15.42)	0.051
2006	7961	7	8.79 (4.19–18.44)	54346	68	12.51 (9.87–15.87)	0.374
2007	8157	8	9.81 (4.9–19.61)	55525	69	12.43 (9.81–15.73)	0.526
2008	8236	9	10.93 (5.69–21.0)	57204	45	7.87 (5.87–10.54)	0.368
2009	8556	13	15.19 (8.82–26.17)	59545	53	8.9 (6.8–11.65)	0.084
2010	8721	7	8.03 (3.83–16.84)	60798	42	6.89 (5.09–9.32)	0.708
2011	9148	9	9.84 (5.12–18.91)	63381	47	7.42 (5.57–9.87)	0.437
2012	9347	17	18.19 (11.31–29.26)	65795	66	10.03 (7.88–12.77)	0.029
2013	9565	16	16.73 (10.25–27.3)	68109	58	8.52 (6.58–11.02)	0.017
2014	9735	16	16.44 (10.07–26.83)	70170	56	7.98 (6.14–10.37)	0.011
2015	10017	15	14.97 (9.03–24.84)	72181	58	8.04 (6.21–10.39)	0.032
2016	10179	21	20.63 (13.45–31.64)	73884	91	12.32 (10.03–15.13)	0.033
2017	10383	21	20.23 (13.19–31.02)	76261	90	11.8 (9.6–14.51)	0.026
Total†	156600	199	12.59 (10.69–14.83)	1088053	1070	9.85 (8.88–10.94)	0.013

CI = confidence interval.

\*All disciplinary case rates were standardized to 10000 physician-years.

†The overall disciplinary rate for all physicians (all specialties) was calculated from the Totals column to be 11.2 cases per 10000 physician-years.

**Table 5. Disciplinary differences among surgeons & other physicians in Canada (2000–2017)**

Disciplinary offense/penalty category	Surgeons	Other physicians	p value
	Proportion disciplined* (95% CI)	Proportion disciplined* (95% CI)	
<b>Offense category</b>			
Standard of care	55.6 (46.6–64.2)	38.7 (32.6–45.2)	< 0.001
Inappropriate prescribing	11.2 (6.4–18.9)	20.4 (15.4–26.4)	0.021
Unlicensed activity	7.2 (4.1–12.4)	8.8 (5.9–12.8)	0.518
Sexual misconduct	9.8 (6–15.7)	20.9 (16.3–26.4)	0.001
Mental illness	1.3 (0.3–5.0)	0.7 (0.1–4.5)	0.647
Self-use of drugs and alcohol	3.2 (1–9.6)	8.2 (4.9–13.3)	0.105
Fraudulent behaviour/prevarication	4.6 (2.4–8.3)	7.4 (4.8–11.2)	0.091
Conviction of a crime	3.5 (1.3–8.7)	10 (6.5–15.0)	0.015
Professional misconduct	47.1 (38.2–56.1)	52.8 (46.4–59.1)	0.203
Miscellaneous findings	10.6 (6.5–16.9)	11.6 (8.6–15.4)	0.688
Unclear findings	1.6 (0.5–5.1)	1.1 (0.5–2.2)	0.406
<b>Penalty category</b>			
Revocation	8.5 (5.0–14.2)	14.4 (10.4–19.5)	0.039
Voluntary licence surrender	8 (4.2–14.8)	10.3 (6.7–15.6)	0.386
Suspension	52.9 (44.2–61.3)	52 (45.8–58.2)	0.837
Restriction	22.7 (16.5–30.3)	22.8 (18.2–28.2)	0.965
Retraining/assessment	32.1 (24.5–40.7)	40.3 (34.0–47.0)	0.059
Counselling/rehabilitation	6 (2.9–11.8)	9.6 (6.5–14.1)	0.139
Formal reprimand	51.4 (42.7–59.9)	58.9 (52.6–65)	0.074
Fine/cost	90.9 (86.4–93.9)	91.3 (88.3–93.6)	0.801

CI = confidence interval; IMG = international medical graduate.

\*Results are adjusted for year, gender, IMG status and years since medical school graduation.

$p < 0.001$ ) (Table 5). Surgeons were less likely than other physicians to be disciplined for sexual misconduct ( $p = 0.001$ ), inappropriate prescribing ( $p = 0.021$ ), or conviction of a crime ( $p = 0.015$ ). They were also less likely to have their licence revoked (8.5%, 95% CI 5.0–14.2 v. 14.4%, 95% CI 10.4–19.5,  $p = 0.039$ ).

## DISCUSSION

We report disciplinary findings for all disciplined physicians across Canada between the years 2000 and 2017. This study period and national scope of assessment was sufficiently large to capture events of misconduct, which are relatively infrequent in nature. We subcategorize disciplinary action against surgeons by specialty, and therefore contribute to the limited data on disciplined surgeons. Our analyses not only examined the risk associated with specialty, but also considered the confounding effects of years in practice, sex, age, and international medical education.

Nearly all disciplined surgeons were male; whereas three-quarters of Canadian surgeons are male,<sup>2</sup> male surgeons accounted for 92.5% of all disciplined surgeons in the country during the study period. This is consistent with previous studies that reported that male physicians had higher disciplinary rates than female physicians.<sup>1,3</sup> Notably, our observation that disciplined surgeons are more likely to be male lost significance when we adjusted for years since graduation from medical school, suggesting that this finding may be confounded by age. Historically, the field of surgery was male dominated, and consequently, male surgeons in our cohort tend to be older than their female counterparts.

Disciplinary action against physicians was more common later in practice. The average number of years from medical school graduation until surgeon discipline was 31.4 years. As surgeons age, it is important to acknowledge potential concerns regarding burnout, cognition, dexterity, familiarity with new practice standards or communication style.<sup>4</sup> Future research should aim to elucidate why older surgeons receive more disciplinary action.

Surgeons were also most likely to be disciplined for standard of care issues. This may be explained by the nature of the surgeon–patient relationship, which is often centred around a procedure. This differs from the longer-term therapeutic alliance that is common in other specialties.<sup>5</sup> Since the surgeon–patient relationship is centred around a procedure, it is possible that complications of a surgery are more readily perceived as a reflection of a surgeon's quality, rather than a recognized risk or adverse event.

Our findings must be interpreted in the context of a few limitations. First, published accounts of disciplinary

action may underestimate true incidence rates of physician discipline, as only physicians found guilty after disciplinary investigation are captured. Second, our primary analysis on disciplinary offenses and penalties compared surgeons and other physicians. We were unable to further stratify by surgical specialty owing to the rarity of events.

Future research should delineate whether disciplinary rates differ by residency experience, open compared with minimally invasive procedures, and community compared with tertiary practice. Further qualitative research may supplement this work and identify themes and patterns regarding standard of care issues that cannot be captured through a quantitative approach.

## CONCLUSION

Our novel, national database of physician discipline showed that surgeons are disciplined at higher rates than other physicians and more frequently for standard of care issues.

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## References

1. Khaliq AA, Dimassi H, Huang CY, et al. Disciplinary action against physicians: who is likely to get disciplined? *Am J Med* 2005;118:773-7.
2. *Supply, distribution and migration of Canadian physicians [2000-2017]*. North York: Canadian Institute for Health Information; 2019. Available: <https://secure.cihi.ca/estore/productseries.htm?pc=PCC34> (accessed 2019 Oct. 15).
3. Alam A, Klemensberg J, Griesman J, et al. The characteristics of physicians disciplined by professional colleges in Canada. *Open Med* 2011;5:e166-72.
4. Firth-Cozens J. Doctors with difficulties: why so few women? *Postgrad Med J* 2008;84:318-20.
5. Stelfox HT, Gandhi TK, Orav EJ, et al. The relation of patient satisfaction with complaints against physicians and malpractice lawsuits. *Am J Med* 2005;118:1126-33.