

CANADIAN JOURNAL OF

Volume 11 Number 3
Fall 2025

Physician Leadership

THE OFFICIAL JOURNAL OF THE CANADIAN SOCIETY OF PHYSICIAN LEADERS



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Present, past, and future



Abraham (Rami) Rudnick, MD, PhD

This fall 2025 issue of the Canadian Journal of Physician Leadership (CJPL) focuses on various types of learning. A national review of Canadian data in pathologists' well-being and workload addresses a much-needed area of learning. Another article addresses the impact of physician leaders with formal training in quality improvement on one of British Columbia's health authorities. Dr. Giuseppe Guaiana argues the benefits of embedding research in rural hospitals and the role of physician leaders in relation to that. Dr. Sandra Fisman looks back on her experience as a senior clinical academic physician leader, outlining milestones and related challenges and opportunities. Dr. Carlos Yu addresses "presence" in physician leadership, commenting on the need for such self-management skills for physician leaders. In their series on health economics, Drs. Hoch and Dewa explain how leaders can use cost-effectiveness data. And a book review looks at conflict resilience and the leadership lessons the reviewer learned.

This issue marks the end of my second year as the editor-in-chief of *CJPL*. It is timely for me to consider here these last couple of years for *CJPL* and its expected future for the next few years. From a content aspect, we have structured *CJPL* to include special ongoing sections, such as health economics and rural physician leadership. We have published scientific articles on physician leadership and related matters, and we have continued to publish viewpoints and book reviews. From a process aspect, we have added an associate editor, section leaders, and new perspectives including updated guidelines for authors and more. And from a format aspect, we have redesigned *CJPL* for reader friendliness and more. The near future of *CJPL* involves adding a health informatics section, restarting a coaching corner, and further marketing to additional stakeholders.

I thank all involved with *CJPL* and I hope to continue to contribute to it as its editor-in-chief and to Canadian and other physician leadership more generally in the years to come. Input on *CJPL*'s content, process, style, and format is always welcomed. Please share your comments and ideas with me and/or any of the *CJPL* team members. Thank you for your readership.

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Canadian pathologists in crisis: a review of national well-being and workload data



Raymond Maung, MBBS, Michael Bonert, MD,
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Background: Canadian pathologists lack workload protection, resulting in excessive unpaid overtime, which contributes to medical errors, rising medicolegal risk, and mental health deterioration. This crisis has resulted in repeated public inquiries about quality of patient care.

KEY WORDS: pathology, workload, burnout, workforce, well-being, psychological security

Maung R, Bonert M, Soll B, Dow H. Canadian pathologists in crisis: a review of national well-being and workload data. *Can J Physician Leadersh* 2025;11(3): 120-130. <https://doi.org/10.37964/cr24795>

Method: This study is a general review of national data with an observational component. First, we correlated workforce-to-population ratio with medicolegal burden. Second, we used Canadian Medical Association (CMA) wellness survey data to rank pathology against other specialties in terms of 17 wellness indicators.

Results: From 2006–2010 to 2016–2020, medicolegal cases per pathologist rose disproportionately. This was most evident in British Columbia (127% increase in complaints vs. 9.4% growth in workforce) and Ontario (39% vs. 15%). Nationally, complaints rose 33% vs. a 16.7%



workforce increase. In contrast, Alberta, with the highest workforce growth (27%), saw a 9% decline in complaints. Pathologists ranked worst on 14 of 17 wellness indicators in the 2018 CMA wellness survey. They reported the lowest levels of psychological well-being and the highest rates of distress. Pathologists had a 2.44-fold increased risk of low psychological well-being compared with physicians in other specialties.

Interpretation: The pathology workforce crisis is driven by excessive workload, inadequate structural support, and rising medicolegal scrutiny, which collectively erode well-being. Addressing these issues requires systemic reform, workload-based contracts, and mental health protections to sustain both physician wellness and patient care quality.

Pathologists strive to deliver the highest quality of patient care. The precision and quality of that care are improving — medicine’s evolving knowledge base has enabled meticulous management of complex cases, ancillary studies have expanded, and reporting requirements have become more rigorous.^{1,2} Despite their increased workload, pathologists do the best that they can — until they no longer can. Currently, Canadian pathologists face an employment model that is unique in Canadian medicine; it lacks workload protections and forces them into excessive unpaid overtime without contractual safeguards. This contributes to rising medicolegal risk and deteriorating mental health.

Laboratories face unpredictable specimen volumes, making workload management difficult. A study analyzing pathology reports from 2011 to 2019 found that, despite a 6% decrease in total cases per year, the workload of pathologists increased substantially: 20% more “blocks,” 23% more workload units, and 19% more report lines.¹ This was matched by only a 1% increase in the workforce.¹ Unlike that of fee-for-service physicians, pathologists’ workload is not tied to compensation. Hospitals have little incentive to pay for overtime, leading to prioritization of increased output from existing staff rather than hiring additional pathologists.³

Unionization is illegal in most provinces, and Ontario’s Employment Standards Act⁴ excludes physicians, leaving salaried and contracted pathologists without labour protections. As a result, pathologists must manage overwhelming workloads without mechanisms to redistribute cases or advocate improved conditions. These demands, coupled with systemic neglect, contribute to severe professional distress.



Canadian pathologists face an employment model that is unique in Canadian medicine; it **lacks workload protections and forces them into excessive unpaid overtime** without contractual safeguards.

Unsurprisingly, Canadian pathologists experience some of the worst mental health outcomes in the Canadian medical profession.⁵ A pre-pandemic study found burnout rates among Canadian pathologists of 57.7%⁶ — exceeding the 35–40% reported among American pathologists who operate under a fee-for-service model.⁷ Lack of workload control is a primary driver of burnout and disengagement among pathologists⁸ and is associated with increased medical errors and higher medicolegal exposure.⁹ Excessive workloads and task maldistribution also contribute to staff absences and departures, further straining the remaining workforce^{1,8} and damaging morale.

This study presents a national-level review of workforce data. Its primary objective is to examine the relation between the Canadian pathologist workforce and medicolegal risk over time. A secondary objective is to compare the well-being indicators of pathologists with those of other medical specialties.

Method

Design

We carried out a general review using an observational approach. Because of the lack of a unified national dataset linking workforce data with medicolegal cases, we aggregated independent datasets. To our knowledge, these are the only national datasets covering the pathology workforce, medicolegal trends, and physician wellness in Canada.



We conducted two independent analyses: the relation between workforce and medicolegal complaints; and the well-being of pathologists compared with other specialties.

Data sources

To study the relation between workforce and medicolegal complaints, we looked at data from the Canadian Institute for Health Information.¹⁰ Workforce data included the number of pathologists per 100 000 population, specialty, and province. For statistical reasons, only large provinces (British Columbia, Alberta, Ontario, Quebec, and Canada as a whole) were included. Specialties included in the analysis were anatomical pathology, general pathology, hematological pathology, and neuropathology.

On our request, the Canadian Medical Protective Association (CMPA) provided data on self-reported medicolegal cases of its members by province and specialty. The 2006–2010 and 2016–2020 periods provided by the CMPA dictated the periods included in the analysis. Data included civil complaints, college complaints, and hospital complaints.

For the second study, pathologists' well-being, we examined the CMA National Physician Health Survey (2018),⁵ which included mental health data, such as burnout and workplace stressors, with laboratory specialty-specific findings. The 2021 survey¹¹ did not separately identify lab specialists, making the 2018 survey the most recent dataset.

Analysis

An observational analysis explored the relation between the number of practising pathologists per 100 000 population and medicolegal complaints per 1000 members of the CMPA, by region. Because of the limited number of cases, data were aggregated into two five-year periods. Aggregation was performed by averaging workforce numbers and medicolegal cases within each period. These values were not normalized further. Given that both datasets were independent and confounders could not be controlled, the analysis remained descriptive and exploratory. The relation between workforce changes and medicolegal case volumes was assessed using Spearman's rank correlation coefficient.

Mental health rankings by specialty were determined using¹⁷ wellness indicators from the CMA 2018 National Physician Health Survey.⁵ Each specialty was ranked best to worst based on flourishing mental health, emotional well-being, burnout, and depression screening positivity. Positive indicators (e.g., psychological well-being) were ranked in descending order, while negative indicators (e.g., burnout, suicidal ideation) were ranked in ascending order. Because of the lack of access to raw data, sensitivity analyses were not possible.

Ethics approval

As all data were either publicly available (CIHI, CMA) or available on request from the controlling organizations (CMPA), this study did not require ethics approval under institutional and national research ethics guidelines.⁹

Results

During the study period, medicolegal complaints rose by 33% (Table 1), far outpacing workforce growth (Table 2), suggesting an escalation of the burden per pathologist. A Spearman’s rank correlation ($r_s(3) = -0.56$, $p = 0.322$) indicated a moderate negative correlation, suggesting that as workforce grew, medicolegal cases increased disproportionately per pathologist. This trend was most pronounced in British Columbia (127% increase in complaints compared with a 9.4% increase in workforce) and Ontario (41% increase in complaints compared with a 12% increase in workforce). This trend was opposite in Alberta, where a 27% increase in workforce was accompanied by a 9% decrease in complaints.

	Alberta	Quebec	Ontario	British Columbia	Canada
2006 -2010	11	24	17	11	18
2016 - 2020	10	32	24	25	24
% change	-9	+33	+41	+127	+33

Note: Medicolegal cases are self-reported to the CMPA at the plaintiff’s discretion; therefore, data may not include all cases. Data are also based on case closure; other cases involving pathologists may still have been open at the time of data extraction.

	Alberta	Quebec	Ontario	British Columbia	Canada
2006 -2010	111	180	258	288	18
2016 - 2020	141	192	289	315	21
% change	27	6.7	12	9.4	16.7

Source: 2018 National Physician Health Survey.⁵

In terms of well-being, pathologists ranked worst in 14 out of 17 mental health indicators in the CMA 2018 National Physician Health Survey (Table 3). Administrative positions rank highest in all but one factor, while pathology (laboratory specialty) ranked worst in most categories. Pathologists reported the lowest ratings of high psychological well-being (71%) and the highest rate of low psychological well-being (27%) — a 2.44-fold increased risk (144%) compared with other physicians (see 2018 National Physician Health Survey,⁵ page 13, $\alpha = 0.004$, adjusted for multiple comparisons). This disparity is larger than the gap in psychological well-being between any two other specialties.

Table 1: Number of closed Canadian Medical Protective Association cases per 1000 members.

Table 2: Number of physicians (including anatomical pathology, general pathology, hematopathology, and neuropathology) per 100 000 population by region for two periods and percentage change between them.

Table 3: Ranked comparison of mental health indicators across six specialty groups: administration, internal medicine, family medicine, medical specialties, surgical specialties, and laboratory specialties (including pathologists). Numbers in parentheses are % of respondents in that category. Peach and blue backgrounds draw attention to the disparities in well-being between administrators and laboratory specialists.

Category	Measure	Best	2nd best	3rd best	4th best	5th best	Worst
Overall mental health	Flourishing	Admin position (74)	Internal medicine (60)	Family medicine (58)	Medical specialty (57)	Surgical specialty (56)	Laboratory specialty (47)
	Languishing (lowest is best)	Admin position (2)	Internal medicine (3)	Family medicine (4)	Medical specialty (4)	Surgical specialty (5)	Laboratory specialty (9)
	Moderately mentally healthy	Admin position (12)	Internal medicine (29)	Family medicine (30)	Medical specialty (31)	Surgical specialty (32)	Laboratory specialty (38)
Emotional well-being	High	Admin position (95)	Internal medicine (90)	Family medicine (88)	Medical specialty (87)	Laboratory specialty (84)	Surgical specialty (82)
	Low (lowest is best)	Admin position (3)	Internal medicine (6)	Family medicine (8)	Medical specialty (9)	Surgical specialty (13)	Laboratory specialty (16)
Social well-being	High	Admin position (76)	Internal medicine (67)	Family medicine (66)	Medical specialty (64)	Surgical specialty (60)	Laboratory specialty (54)
	Low (lowest is best)	Admin position (17)	Internal medicine (27)	Family medicine (28)	Medical specialty (30)	Surgical specialty (34)	Laboratory specialty (41)
Psychological well-being	High	Admin position (86)	Internal medicine (83)	Family medicine (83)	Medical specialty (81)	Surgical specialty (79)	Laboratory specialty (71)
	Low (lowest is best)	Admin position (5)	Internal medicine (11)	Family medicine (12)	Medical specialty (13)	Surgical specialty (17)	Laboratory specialty (27)
Resilience	High	Admin position (93)	Surgical specialty (84)	Medical specialty (83)	Internal medicine (82)	Family medicine (82)	Laboratory specialty (77)
	Low (lowest is best)	Admin position (5)	Surgical specialty (15)	Medical specialty (16)	Internal medicine (17)	Family medicine (17)	Laboratory specialty (22)
Burnout	High emotional exhaustion (lowest is best)	Admin position (19)	Surgical specialty (24)	Medical specialty (25)	Laboratory specialty (25)	Internal medicine (27)	Family medicine (28)
	High depersonalization (lowest is best)	Admin position (10)	Medical specialty (12)	Family medicine (15)	Internal medicine (17)	Surgical specialty (18)	Laboratory specialty (19)
	Overall burnout (lowest is best)	Admin position (19)	Laboratory specialty (28)	Surgical specialty (29)	Medical specialty (29)	Internal medicine (31)	Family medicine (32)
Depression	Screened positive (lowest is best)	Admin position (19)	Surgical specialty (29)	Medical specialty (32)	Internal medicine (33)	Family medicine (35)	Laboratory specialty (40)
Suicidal ideation	Lifetime (lowest is best)	Internal medicine (15)	Surgical specialty (16)	Medical specialty (18)	Admin position (19)	Family medicine (20)	Laboratory specialty (22)
	Recent (last 12 months; lowest is best)	Admin position (3)	Internal medicine (7)	Surgical specialty (7)	Medical specialty (8)	Family medicine (9)	Laboratory specialty (10)

Source: Canadian Medical Association 2018 National Physician Health Survey.5

Pathologists also reported the lowest overall flourishing mental health rate (47%) and highest languishing rate (9%). They scored second lowest in emotional well-being (84%), lowest in high social well-being (54%), and highest in low social well-being (41%). Depression rates were highest (40%), and burnout was significant and comparable to other specialties, with 25% of pathologists experiencing emotional exhaustion and 19% reporting depersonalization. Suicidal ideation rates were elevated, with 22% lifetime prevalence and 10% of pathologists reporting recent suicidal thoughts, similar to rates observed in family medicine and medical specialties.

Interpretation

Our analysis found that medicolegal complaints against pathologists increased in all provinces but Alberta, suggesting an increase in errors that impact patient care. Pathologists ranked last in wellness indicators, with higher rates of burnout, depression, and suicidal ideation than most other specialties. Comparatively, administrators, who have the greatest control over workload, ranked highest in well-being indicators. This supports the importance of control over one's work environment.

Between 2006–2010 and 2016–2020, we found a marked increase in medicolegal cases per pathologist. This trend may reflect increasing workload pressures, case complexity, and evolving medicolegal scrutiny. Excessive workload is associated with increased medicolegal risk and errors.¹² Patient safety is affected when pathologists work more than 39 hours per week;¹³ Canadian pathologists work an average of 59 hours per week, including 19 hours of unpaid overtime.¹³ The consequences of chronic burnout extend to increased medical errors and decreased diagnostic accuracy, posing a direct risk to patient outcomes.¹⁴ In contrast to other provinces, Alberta, which has adopted the Canadian Association of Pathologists' level 4 equivalent system,¹⁵⁻¹⁷ had the greatest growth in workforce (27%) and was the only province to see a decrease in medicolegal complaints (-9%).

International data suggest that pathology workload has intensified through increased case complexity and expanded reporting requirements.^{1,2,18,19} In addition, task maldistribution contributes to staff departures, which place further strain on an already understaffed system⁸ that falls under public scrutiny for high-profile diagnostic errors.^{20,21} In 2025, there were 118 unfilled pathology resident positions.²² These findings suggest that

the increasing medicolegal burden faced by pathologists may be driven in part by systemic workload pressures, which continue to rise without corresponding workforce expansion or structural support.

Pathologists face a 2.44-fold risk of low psychological well-being compared with other physicians,⁵ which aligns with recent findings that burnout, depression, and anxiety are prevalent in the profession.⁵⁻⁸ The solitary nature of pathology — with minimal social engagement and collegial interaction — further exacerbates these challenges.⁶ Chronic work-related pain, particularly musculoskeletal strain from prolonged sedentary work and repetitive tasks, has been identified as a significant but underrecognized contributor to burnout.^{6,23} However, limited work flexibility is the strongest predictor of burnout among Canadian pathologists.⁶

Beyond workload, lack of psychological safety in workplace culture, exacerbated by the established “culture of bullying” in the Canadian medical fraternity,²⁴⁻²⁶ may contribute to poor well-being. A 2018 study found that up to 75% of Canadian resident physicians had reported harassment and/or intimidation.²⁶ Similar rates were observed in an American study, which established that the intensity of workplace incivility increased the number of sick days taken by laboratory practitioners.²⁷ In response to a webinar on burnout in Canadian pathologists, participants raised concerns that mental health is often dismissed by hospital administrators as “whining.”²⁸ Combined, these circumstances appear to reinforce a culture of silence in the profession and create barriers to developing psychological safety.²⁹

Limitations and knowledge gaps

As a general review with an observational component, this article synthesizes national datasets that were not designed for direct comparison, limiting the ability to adjust for confounders, such as regulatory changes, differences in case adjudication, or provincial variation in medicolegal reporting. Furthermore, as Canadians physicians report their medicolegal cases to the CMPA at their own discretion, the data may not include all cases. In addition, the analysis does not consider such factors as policy shifts and increased legal scrutiny.

The analysis of mental health ranking lacks weighting, meaning that indicators with high prevalence (e.g., burnout) may have a disproportionate influence on specialty rankings. Because of data restrictions, a sensitivity analysis was not conducted, preventing further validation. Mental health



Beyond workload, lack of psychological safety in workplace culture, exacerbated by the established “**culture of bullying**” in the **Canadian medical fraternity**,²⁴⁻²⁶ may contribute to poor well-being.

data specific to pathologists are limited; the 2018 CMA survey⁵ remains the only national dataset that disaggregates laboratory specialists, leaving post-pandemic trends unexplored. These limitations should be considered when interpreting the findings.

Call to action

In light of the evidence, we urge provincial health leaders and pathology departments to champion change collaboratively. We recommend:

- Shifting from time-based to workload-based contracts to ensure equitable compensation for consultative, administrative, and academic duties, using Laboratory Information Systems (LIS) data to track workload.
- Including pathologists as key stakeholders in defining workload benchmarks. A national workload model should standardize benchmarks and support fair distribution.
- Transparent workload tracking to improve accountability, morale, and staffing decisions. Transparency would improve morale by addressing actual or perceived workload imbalances and facilitating cooperative crisis management.
- Collaboration between leadership and pathologists to oversee the implementation of well-being initiatives and policies aimed at reducing workplace bullying, with the aim of fostering a transparent and equitable environment and a culture of psychological safety.

Conclusion

Canadian pathologists face a high level of medicolegal risk and mental health disparities relative to other specialties. The disproportionate increase in medicolegal complaints relative to workforce growth may reflect rising error rates, regulatory scrutiny, or evolving medicolegal frameworks. Pathologists consistently rank worst in well-being indicators and are at high risk of poor psychological well-being.

This national review makes clear that Canadian pathology is at a tipping point — burnout and workload pressures are not only undermining pathologists' well-being but may also threaten the quality of patient care. Implementing nationwide workload standards and pathologist wellness programs and addressing workplace culture could serve as critical interventions. Without systemic changes, the profession risks further attrition and widening gaps in patient safety. A coordinated, evidence-based response is urgently needed to sustain the pathology workforce and safeguard the integrity of Canada's health care system.

References

1. Bonert M, Zafar U, Maung R, El-Shinnawy I, Kak I, Cutz JC, et al. Evolution of anatomic pathology workload from 2011 to 2019 assessed in a regional hospital laboratory via 574 093 pathology reports. *PLoS One* 2021;16(6):e0253876. <https://doi.org/10.1371/journal.pone.0253876>
2. Maung RT, Geldenhuys L, Rees H, Issa Chergui B, Ross C, Erivwo PO. Pathology workload and human resources in Canada — trends in the past 40 years and comparison to other medical disciplines. *Can J Pathol* 2020;12(1):16-29.
3. Bonert M, Zafar U, Maung R, El-Shinnawy I, Naqvi A, Finley C, et al. Pathologist workload, work distribution and significant absences or departures at a regional hospital laboratory. *PLoS One* 2022;17(3):e0265905. <https://doi.org/10.1371/journal.pone.0265905>
4. Employment Standards Act, 2000, S.O. 2000, c. 41. Toronto: Government of Ontario; 2024. Available: <https://www.ontario.ca/laws/statute/00e41>
5. CMA national physician health survey: a national snapshot. Ottawa: Canadian Medical Association; 2018. Available: <https://digitallibrary.cma.ca/link/digitallibrary18>
6. Keith J. The Burnout in Canadian Pathology Initiative. *Arch Pathol Lab Med* 2022;147(5):568-76. <https://doi.org/10.5858/arpa.2021-0200-OA>
7. Garcia E, Kundu I, Kelly M, Soles R, Mulder L, Talmon GA. The American Society for Clinical Pathology's job satisfaction, well-being, and burnout survey of laboratory professionals. *Am J Clin Pathol* 2020;153(4):470-86. <https://doi.org/10.1093/ajcp/aqaa008>
8. Smith SM, Liauw D, Dupee D, Barbieri AL, Olson K, Parkash V. Burnout and disengagement in pathology: a pre-pandemic survey of pathologists and laboratory professionals. *Arch Pathol Lab Med* 2023;147(7):808-16. <https://doi.org/10.5858/arpa.2022-0073-OA>
9. Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, Social Sciences and Humanities Research Council of Canada. Tri-council policy statement: ethical conduct for research involving humans. Ottawa: Interagency Secretariat on Research Ethics; 2014. Available: <https://publications.gc.ca/site/eng/9.700182/publication.html>
10. Physicians per 100 000 population, by specialty. Ottawa: Canadian Institute for Health Information; 2024. Available: <https://tinyurl.com/36s674ye>
11. CMA 2021 national physician health survey. Ottawa: Canadian Medical Association; 2022. Available: <https://digitallibrary.cma.ca/link/digitallibrary17>
12. Li CJ, Shah YB, Harness ED, Goldberg ZN, Nash DB. Physician burnout and medical errors: exploring the relationship, cost, and solutions. *Am J Med Qual* 2023;38(4):196-202. <https://doi.org/10.1097/JMQ.000000000000131>
13. Maung R. Work pattern of Canadian pathologists. *Diagn Histopathol* 2016;22(8):288-93. <https://doi.org/10.1016/j.mpdhp.2016.07.003>
14. Panagioti M, Geraghty K, Johnson J, Zhou A, Panagopoulou, Chew-Graham C et al. Association between physician burnout and patient safety, professionalism, and patient satisfaction: a systematic review and meta-analysis. *JAMA Intern Med* 2018;178(10):1317-30. <https://doi.org/10.1001/jamainternmed.2018.3713>
15. Wright JR, Chan S, Morgen EK, Maung RTA, Canadian Association of Pathologists' Pan-Canadian Pediatric-Perinatal Pathology Workload Committee. Workload measurement in subspecialty placental pathologist in Canada. *Pediatr Dev Pathol* 2022;25(6):604-10. <https://doi.org/10.1177/10935266221118150>

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Attestation: RM was the principal investigator and was responsible for sourcing data. RM and MB conducted the initial analyses and drafted the manuscript. RM, MB, BS, and HD were involved in the analysis, writing, and review of the article. All authors take responsibility for the work.

Competing interests: The authors have no competing interests in regard to this study. Details of this project have not been presented or published in any form previously.

16. The Canadian Association of Pathologists workload model. Kingston, Ont.: Canadian Association of Pathologists; 2018. <https://tinyurl.com/429p4mth>
17. Park PC, Kurek KC, DeCoteau J, Howlett CJ, Hawkins C, Izevbye I, et al. CAP-ACP Workload model for advanced diagnostics in precision medicine. *Am J Clin Pathol* 2022;158(1):105-11. <https://doi.org/10.1093/ajcp/aqac012>
18. Khatab Z, Hanna K, Rofaeil A, Wang C, Maung R, Yousef GM. Pathologist workload, burnout, and wellness: connecting the dots. *Crit Rev Clin Lab Sci* 2024;61(4):254-74. <https://doi.org/10.1080/10408363.2023.2285284>
19. Stagner AM, Tahan SR, Nazarian RM. Changing trends in dermatopathology case complexity: a 9-year academic center experience. *Arch Pathol Lab Med* 2021;145(9):1144-7. <https://doi.org/10.5858/arpa.2020-0458-OA>
20. Roberts D. Possible errors in mammography results prompt review at N.L. health authorities. Ottawa: CBC; 2022. Available: <https://tinyurl.com/493m7k4s>
21. Dino A. Damages reduced in breast cancer misdiagnosis case: BC Court of Appeal. *Can Lawyer* 2024. Available: <https://tinyurl.com/33hz2n4c>
22. Unfilled positions after the second iteration of the 2025 R-1 main residency match — by discipline. Ottawa: Canadian Resident Matching Service; 2025. Available: <https://tinyurl.com/bdhf9ycw>
23. Khan S. The dark side of being a pathologist: unravelling the health hazards. *Indian J Pathol Microbiol* 2024;67(1):46-50. https://doi.org/10.4103/ijpm.ijpm_1148_21
24. Vogel L. Culture of bullying in medicine starts at the top. *CMAJ* 2018;190(49):E1459-60. <https://doi.org/10.1503/cmaj.109-5690>
25. Vogel L. Doctors dissect medicine's bullying problem. *CMAJ* 2017;189(36):E1161-2. <https://doi.org/10.1503/cmaj.1095484>
26. Vogel L. Canadian medical residents report pervasive harassment, crushing workloads. *CMAJ* 2018;190(46):E1371. <https://doi.org/10.1503/cmaj.109-5678>
27. Chiou PZ, Mulder L, Jia Y. Workplace bullying in pathology laboratory medicine. *Am J Pathol* 2023;159(4):358-66. <https://doi.org/10.1093/ajcp/aqac160>
28. Soll A, Dow H. Creating meaning through small doses of actionable learning: a mixed methods analysis of CAP-ACP's virtual CME activities. *Can J Med Specialties* 2025;1(2):16-25. <https://doi.org/10.63838/001c.142943>
29. Siad FM, Rabi DM. Harassment in the field of medicine: cultural barriers to psychological safety. *CJC Open* 2021;3(12 suppl):S174-9. <https://doi.org/10.1016/j.cjco.2021.08.018>

Funding: No funding was received for this project.

Data availability: The datasets generated for this study are available from the corresponding author on reasonable request.

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This article has been peer reviewed.

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Mantra:

“Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom” – Victor Frankl

The space between: reclaiming presence in physician leadership



Carlos Yu, MD



Yu C. The space between: reclaiming presence in physician leadership. *Can J Physician Leaders* 2025;11(3): 131-135. <https://doi.org/10.37964/cr24796>

The leadership problem we're not naming

Physician leadership today sits inside relentless complexity: cascading decisions, contested priorities, moral distress, and the ambient hum of urgency. The common fix is to do more — optimize another process, add another tool, accelerate the pace. But the more we accelerate, the narrower our attention becomes, and the less we perceive what actually needs our care.

This viewpoint explores presence as a practical leadership capacity: not an escape from complexity but a way to perceive it with higher resolution. Presence is not a mood or a luxury. It is the disciplined ability to notice what is happening — within and around us — so that judgement gives way to discernment and reflex gives way to choice. As Viktor Frankl observed, “Between stimulus and response there is a space. In that space is our power to choose our response. In our response lies our growth and our freedom.”¹



Presence is not a mood or a luxury. It is the **disciplined ability to notice what is happening** — within and around us — so that judgement gives way to discernment and reflex gives way to choice.

Presence as a leadership technology

Presence becomes actionable when it is translated into skills leaders can practise together:

- **Recognizing involuntary thoughts** — Judgements and interpretations arise automatically — conditioned, rapid, and often invisible. Treating them as events in the mind, rather than truths to obey, creates the small wedge of freedom from which wise leadership proceeds.
- **Anchoring in sensory awareness** — The nervous system's direct signals — breath, posture, temperature, muscle tone — are a reliable reference when narratives are noisy. Sensation widens the perceptual field and stabilizes attention in high-stakes moments, echoing Jon Kabat-Zinn's insight that "mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally."²
- **Allowing non-ordinary states** (safely, briefly, purposefully) — Deep quiet, shared stillness, and other state-shifts can loosen habitual cognition and reveal overlooked options. These are not curative claims; they are contextual tools for seeing differently so we can lead differently.

Practised together, these skills reduce reactivity, increase relational intelligence, and improve the quality of collective decisions. The "technology" is humble: attention, breath, and the willingness to pause long enough for better options to emerge.

Why this matters system-wide

Presence is often framed as self-care. In leadership it is system care. When a leader can recognize an involuntary judgement ("this will never work," "this person is difficult," "we don't have time"), name it as a thought, and return to direct data (what is actually being said, sensed, and needed), the tone of the room changes. Psychological safety rises. Creativity becomes possible. Meetings consume less energy and produce clearer agreements. Small shifts compound.

As Snowden and Boone remind us in their framework for leading in complexity, *different contexts call for different kinds of responses*³ — and presence is what enables a leader to discern which is needed in the moment.

Crucially, presence scales because it is non-proprietary and low cost. A one-minute pause before a difficult agenda item. A practice of briefly naming the assumptions in the room. A closing round of sensations ("one word:



Practised together, these skills reduce reactivity, increase relational intelligence, and **improve the quality of collective decisions**. The "technology" is humble: attention, breath, and the willingness to pause long enough for better options to emerge.

how does your body feel now?”) to calibrate nervous systems before the next task. None of these requires new funding lines, and all of them reshape culture.

Lived experience: one example (illustrative, not evidentiary)

Recently, a nurse practitioner invited me to facilitate a short group session at her family health team in Perth, Ontario. Ten participants — physicians, admin, learners, and community members — gathered in a newly prepared space. We set 31 minutes aside for shared stillness supported by a simple, standardized ear-acupuncture protocol (the NADA⁴ approach) and followed by integration dialogue.

What happened next was ordinary and instructive. One participant described a vivid, grounded forest journey. Another said she found her “zen spot.” A physician noticed she woke feeling unusually refreshed. An administrator, seated between a psychology student and a public-sector leader, reported an almost palpable calm radiating from both sides. The conversation afterward was unhurried, respectful, and specific — people spoke from direct experience rather than from opinion.

Two days later, the leadership debrief focused not on “did it work?” but on “what it made possible”: interest in a repeating, team-led offering; a plan to train facilitators from within; and curiosity about how brief, shared stillness might become a normal feature of team life. This is not presented as clinical proof; it is a leadership vignette about culture change initiated by a small, shared practice.

From concept to cadence: making presence habitual

Leaders do not need to become meditation teachers or adopt new identities. They need cadence — tiny, dependable practices that create space between stimulus and response:

- **Open with orientation (60–90 seconds)** — Before major items, invite the group to place both feet on the floor, lengthen the spine, soften the jaw, and take two quiet breaths. No mystique; just physiology.
- **Name the mind** — When stakes rise, normalize the sentence, “Notice what your mind is supplying right now — assumptions, judgements, predictions. They’re thoughts. They’re conditioned. They arrived on their own.” The aim is to loosen identification, not to suppress thinking.

“

Leaders [need] tiny, dependable practices that create **space between stimulus and response**

- **Return to data** — Ask, “What do we actually know from direct observation?” Separate sensed facts from interpretations. Decide from the wider field.
- **Close with calibration (30 seconds)** — One-word check-out (“ready,” “cloudy,” “steady,” “tight”). This trains leaders to read the room as a nervous system, not just a set of roles.

These moves are deceptively small. Their power is cumulative. Culture is what we do repeatedly — especially under time pressure.

Addressing common objections

“We don’t have time.” Then we especially need to stop losing time to reactivity. A one-minute pause often saves 15 minutes of unproductive debate.

“This feels soft.” Presence is not softness; it is precision. It reduces error born of narrowed attention.

“What about evidence?” This viewpoint does not claim therapeutic outcomes from any single practice. It argues that state management and shared attention are legitimate leadership competencies that improve the conditions under which evidence-based care is delivered.

The invitation

Presence is not a specialty. It is a human capacity we can normalize in leadership without jargon or fuss. Start small: one minute of shared stillness before your next contentious agenda item. Name thoughts as thoughts. Ask for direct data. Notice the shift in tone. Repeat weekly. Then decide what, if anything, needs building out from there.

The space between stimulus and response is where leadership lives. We can cultivate that space — together.

“

Presence is not softness; it is precision. **It reduces error born of narrowed attention.**

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Mantra:

“Keep some room in your heart for the unimaginable” - Mary Oliver

References

1. Frankl VE. Man's search for meaning. Boston: Beacon Press; 1946.
2. Kabat-Zinn J. Wherever you go, there you are: mindfulness meditation in everyday life. New York: Hyperion; 1994.
3. Snowden DJ, Boone ME. A leader's framework for decision making. Harv Bus Rev 2007;85(11), 68-76.
4. What is the NADA protocol? Clinton, Md.: National Acupuncture Detoxification Association; n.d. Available: <https://acudetox.com/protocol>

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Mantra:

Lead with intention. Live in the moment.

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Embedding research in rural hospitals: **a leadership priority** for reducing health inequities and fostering innovation



Giuseppe Guaiana, MD, PhD



Rural hospitals play a critical role in delivering care to populations that face persistent health inequities compared with their urban counterparts. These inequities include poorer survival rates for time-sensitive conditions, later-stage diagnoses, and reduced access to specialized care. Despite their central role in their communities, rural hospitals remain under-represented in health research and often lack the sustainable infrastructure needed to conduct it. International experience shows that hospitals engaged in research achieve better patient outcomes, greater adherence to evidence-based practice, and stronger workforce retention. Case examples demonstrate that embedding research capacity in rural hospitals is feasible, improves quality, fosters innovation, and accelerates the adoption of effective care models. Thus, building research into the core business of rural hospitals is both an ethical obligation and a strategic opportunity for health system improvement.

Guaiana G. Embedding research in rural hospitals: a leadership priority for reducing health inequities and fostering innovation. *Can J Physician Leadersh* 2025;11(3): 136-142. <https://doi.org/10.37964/cr24797>

The health gap between rural and urban Canadians is persistent and well-established.¹ Rural residents experience avoidable disadvantages in access to timely, high-quality care, leading to poorer overall health outcomes. These inequities are driven by system-level factors, such as service distribution, infrastructure limitations, and workforce shortages, rather than geography alone.² For example, rural hospitals in Canada had higher 30-day in-hospital mortality rates following stroke than urban academic hospitals and the Canadian average.³ Also, trauma patients treated in rural emergency departments (EDs) had a higher mortality rate and were more likely to die prehospital or in the ED compared with patients treated at an urban trauma centre.⁴

Addressing this issue requires more than incremental improvements in service delivery; it demands locally generated evidence to inform models of care that reflect the realities of rural practice. Embedding research capacity in rural hospitals should be regarded not merely as an enhancement, but also as an important strategic priority.

Why research must be embedded in rural hospitals

International evidence shows that research-active hospitals are associated with improved patient outcomes, better adherence to evidence-based practice, and increased workforce engagement.⁵ Mechanisms may include the faster adoption of new evidence into clinical workflow, more robust clinical governance and decision-making, and greater professional satisfaction and retention among clinicians.⁵

In rural settings, smaller organizational size and closer community integration can allow research findings to be implemented more quickly than in large urban centres. However, without dedicated structures and resources, these advantages are lost. Some voices have argued that rural hospitals have the potential for “place-based research” — investigations that directly address local priorities and realities, allowing improved knowledge of solutions to address rural health inequities.⁶ Embedding research capacity enables rural hospitals to move from being passive recipients of externally generated evidence to active contributors shaping care models.



These inequities are driven by system-level factors, such as **service distribution, infrastructure limitations**, and workforce shortages, rather than geography alone.²

Case examples

In the following cases, rural research led to improvement in health service delivery and access to care.

Example 1: Living Lab Charlevoix (Quebec, Canada)

The Living Lab Charlevoix — developed by the Centre intégré de santé et des services sociaux de l'Outaouais in partnership with Université Laval — integrates innovation into daily rural health care operations.⁷ Initiatives have included:

- Implementing TREKK (TRanslating Emergency Knowledge for Kids), a pediatric emergency decision-support application
- Trialling AI-based clinical documentation in emergency care
- Testing telemedicine for in-flight ambulance nurses (abandoned after connectivity challenges)
- Mobilizing over 3000 medical students during COVID-19 to staff rural emergency departments

Even discontinued projects yielded actionable knowledge, demonstrating that rigorous evaluation of “failed” innovations can be as valuable as successful implementation.

Example 2: Colac Area Health research unit (Australia)

Colac Area Health, a small rural hospital in Victoria, Australia, embedded a dedicated research unit in its governance structure in partnership with Deakin University and the Western Alliance Academic Health Science Centre.^{8,9} The unit provided staff with protected time for research, operational resources, and training in study design, data analysis, and knowledge translation.

In the first two years of operation, measurable improvements were observed:

- Research capacity and culture increased in 9 of 20 measured domains
- Staff competence in research methods, analysis, and translation improved
- Perceived career development opportunities and workplace relevance among participating staff were enhanced

These outcomes demonstrate that embedding research leadership in organizational governance, combined with partnerships, dedicated resources, and protected staff time, can significantly strengthen rural health service research capacity and sustainability.

Example 3: The Rural Health Initiative (central Idaho, USA)

The Rural Health Initiative (RHI) was developed through a partnership between the University of Washington's Institute of Translational Health Sciences' community engagement program and St. Mary's Health and Clearwater Valley Health System in north-central Idaho.¹⁰ The goal was to build capacity for community-driven translational research in a rural setting.

Through literature review, community survey data, and facilitated discussions, the RHI identified health care access as the top community health priority across three counties. Key outcomes of the initiative include:

- Establishing a co-led partnership model, with academic researchers and rural health care leaders sharing decision-making authority
- Conducting a community forum and surveys that engaged both health care providers and residents to prioritize health challenges
- Identifying barriers limiting health care access, such as geography, economics, workforce shortages, and cultural factors
- Highlighting potential solutions, including expanding services (e.g., telehealth, community health workers), reducing costs, improving infrastructure, and supporting behavioural change initiatives
- Developing guidance for best practices in community-academic rural partnerships, emphasizing community-led processes, trust-building, inclusive engagement, and long-term commitment

This case underscores the importance of rural communities directly shaping the research agenda, ensuring that academic resources align with local priorities and contribute to sustainable improvements in health care access.

How can we embed research in rural hospitals?

A critical factor in realizing the benefits of research in rural hospitals is organizational structure. Smaller hospitals often have the advantage of agility, allowing new findings to be adopted quickly. However, without formal mechanisms, such as dedicated research units, governance representation, and operational funding, this potential remains largely untapped. Strong leadership commitment and integration of research into hospital strategy are, therefore, essential.



Smaller hospitals often have the advantage of agility, **allowing new findings to be adopted quickly.** However, without formal mechanisms, such as dedicated research units, governance representation, and operational funding, this potential remains largely untapped.

Key leadership actions may include:

- **Governance integration:** Position research as a standing element of executive strategy and align it with quality and safety portfolios
- **Protected time and resources:** Support clinicians and allied health care staff with protected time, administrative assistance, and access to analytic resources
- **Local relevance and co-design:** Involve patients, Indigenous communities, and local providers to ensure research questions and methods are contextually appropriate
- **Networked collaboration:** Engage with provincial and national research networks to share expertise and infrastructure
- **Accountability:** Track both process indicators (e.g., staff participation, publications) and impact indicators (e.g., practice changes, patient outcomes)

In Canada, funding models rarely support sustained rural research capacity. In Australia, some federal grants now require rural organizational leadership and residency of the principal investigator in rural areas.⁶ Similar Canadian policy measures could:

- Incentivize rural hospital leadership to invest in research infrastructure
- Promote equitable distribution of research funding
- Create pathways for career development in rural research roles

Embedding research in rural hospitals is not a luxury, it is an ethical and operational necessity. Evidence suggests that doing so can help reduce avoidable morbidity and mortality in rural centres.^{1,2} Strategically, strengthening organizational performance, fostering innovation, and improving workforce retention are key benefits associated with research engagement.⁷⁻¹⁰ International studies also show that hospitals engaged in research tend to deliver higher-quality care,¹¹ making the integration of research into rural hospital operations a leadership responsibility rather than a peripheral activity.

Conclusion

Rural health inequities in Canada remain persistent and concerning. Quantitative evidence from Canadian studies highlights significant outcome disadvantages associated with rural residence, largely driven by system-level factors rather than by individual patient characteristics.^{3,4} Case

studies from Quebec,⁷ Australia,^{8,9} and the United States¹⁰ demonstrate that embedding research capacity in rural hospital governance is both feasible and impactful. Evidence also indicates that hospitals with stronger research engagement are associated with lower mortality rates.¹¹

Although this discussion has focused primarily on rural hospitals, similar principles apply to other rural health services, including community mental health programs and non-governmental organizations. These services often operate with even fewer resources than hospitals, yet they play a vital role in addressing the complex health needs of rural populations. Extending research partnerships and infrastructure support to these organizations could enhance care models, strengthen service integration, and contribute to reducing inequities at the community level.

At the same time, important limitations must be recognized. In particular, the cost-effectiveness and long-term sustainability of embedding research capacity in rural hospitals and related services remain underexplored. Although evidence points to clinical and organizational benefits, the absence of robust economic evaluations means that health system leaders must weigh these initiatives against other competing priorities in resource-constrained environments.

Taken together, these findings suggest that rural hospitals are well positioned to lead place-based research efforts that address both local and global health challenges.

References

1. Pong RW, Desmeules M, Lagacé C. Rural–urban disparities in health: how does Canada fare and how does Canada compare with Australia? *Aust J Rural Health* 2009;17(1):58-64. <https://doi.org/10.1111/j.1440-1584.2008.01039.x>
2. Sibley LM, Weiner JP. An evaluation of access to health care services along the rural–urban continuum in Canada. *BMC Health Serv Res* 2011;11:20. <https://doi.org/10.1186/1472-6963-11-20>
3. Fleet R, Bussi eres S, Tounkara FK, Turcotte S, L egar e F, Plant J, et al. Rural versus urban academic hospital mortality following stroke in Canada. *PLoS One* 2018;13(1):e0191151. <https://doi.org/10.1371/journal.pone.0191151>
4. Fleet R, Lauzier F, Tounkara FK, Turcotte S, Poitras J, Morris J, et al. Profile of trauma mortality and trauma care resources at rural emergency departments and urban trauma centres in Quebec: a population-based, retrospective cohort study. *BMJ Open* 2019;9(6):e028512. <https://doi.org/10.1136/bmjopen-2018-028512>
5. Boaz A, Hanney S, Jones T, Soper B. Does the engagement of clinicians and organisations in research improve healthcare performance: a three-stage review. *BMJ Open* 2015;5(12):e009415. <https://doi.org/10.1136/bmjopen-2015-009415>



Similar principles apply to other rural health services ... [that] often operate with even fewer resources than hospitals, yet **they play a vital role** in addressing the complex health needs of rural populations.

6. Alston L, Versace VL. Place-based research in small rural hospitals: an overlooked opportunity for action to reduce health inequities in Australia? *Lancet Reg Health West Pac* 2023;30:100682. <https://doi.org/10.1016/j.lanwpc.2022.100682>
7. Basky G. Quebec-based research initiative explores innovations in rural health care. Ottawa: Canadian Medical Association; 2023. Available: <https://tinyurl.com/4ktt57e5>
8. Alston L, Field M, Brew F, Payne W, Aras D, Versace VL. Addressing the lack of research in rural communities through building rural health service research: establishment of a research unit in Colac, a medium rural town. *Aust J Rural Health* 2022;30(4):536-9. <https://doi.org/10.1111/ajr.12860>
9. Alston L, Pu D, Wood S, Field M, Beks H, King OA, et al. Embedding research into the organisational structure of smaller rural hospitals: building research culture and capacity and understanding perceived rural health workforce benefit. *BMC Health Serv Res* 2025;25(1):1008. <https://doi.org/10.1186/s12913-025-13107-8>
10. Zigman Suchsland M, van Rensburg D, McGrath K, Wilkinson C, Johnson K, Steinbruecker A, et al. The rural health initiative: bridging gaps in healthcare access and grant-funded research in central Idaho. *J Clin Transl Sci* 2024;9(1):e4. <https://doi.org/10.1017/cts.2024.669>
11. Ozdemir BA, Karthikesalingam A, Sinha S, Poloniecki JD, Hinchliffe RJ, Thompson MM, et al. Research activity and the association with mortality. *PLoS One* 2015;10(2):e0118253. <https://doi.org/10.1371/journal.pone.0118253>

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Analyzing cost-effectiveness data: from calculation to illustration



Jeffrey S. Hoch, PhD, and Carolyn S. Dewa, MPH, PhD

In this sixth article in a series on health economics, we focus on computing cost-effectiveness statistics. We provide examples of how leaders can communicate the findings and illustrate the main points. Building on previous articles, we show calculations and introduce options to communicate the results visually to make the message clear. Although many factors influence a decision, efficiency is an important one, and the results of cost-effectiveness analysis can help guide a value-based strategy in an economically attractive manner.

KEY WORDS: leadership, cost-effectiveness analysis, health economics

Hoch JS, Dewa CS. Analyzing cost-effectiveness data: from calculation to illustration. *Can J Physician Leadersh* 2025;11(3): 143-151. <https://doi.org/10.37964/cr24798>

Greater data availability provides an opportunity to study the efficiency of new options and novel interventions using cost-effectiveness analysis (CEA).¹⁻⁵ CEA examines both costs and outcomes simultaneously, distinguishing itself from cost-minimization where only costs are considered. Although CEA can be conducted by modelling with a collage of estimates and best guesses supported by the scientific literature and expert opinion, it is also possible to do CEA using a cost-effectiveness dataset. In this article, we illustrate how to create and present CEA results. While CEA can seem to be an academic exercise, physician leaders may be motivated to study cost-effectiveness not just as knowledge for knowledge's sake, but also as a foundation of accountability for resources being spent.⁶

Economic modelling plays a major role informing health technology assessment processes in Canada and throughout the world; however, for pragmatic decision-making, analysis of available data is often enough to inform a decision. In fact, Hunter and Franklin⁷ argue that analyzing a cost-effectiveness dataset can be satisfactory, except when the data are not fit for purpose. “Modelling is necessary in situations with incorrect comparators, when a key outcome of interest is not captured, and if evidence synthesis (e.g., meta-analyses) is possible/required.”⁷ Therefore, in this article, we assume that readers are analyzing a dataset with a correct comparator, a key outcome of interest, and relevant costs.

Cost-effectiveness with a yes/no outcome

Separate reporting of cost and effect

Assume you are considering whether to invest in a new option and you want to use CEA to help inform your decision. Based on a pilot study at your organization, you have the following findings in terms of expected cost (Figure 1) and expected outcome (Figure 2).

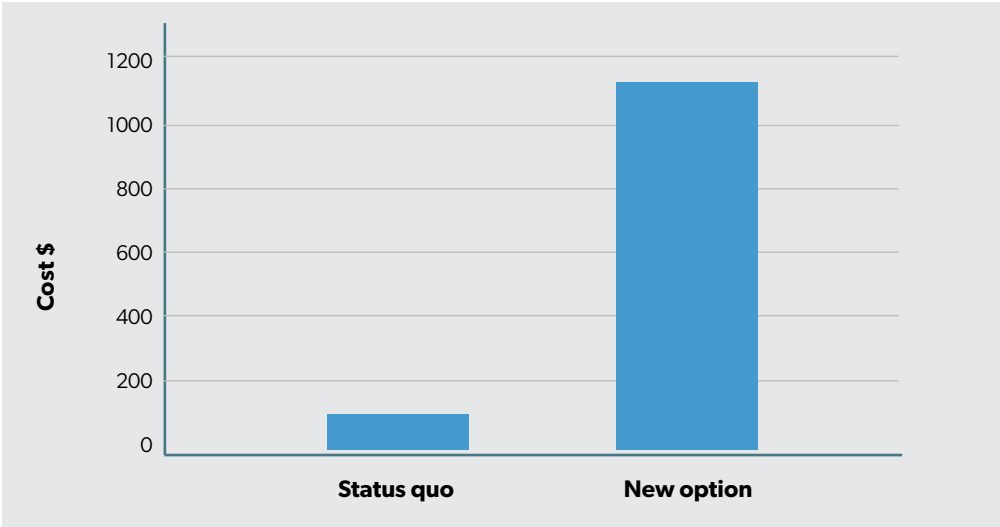


Figure 1: Expected cost for the two options.

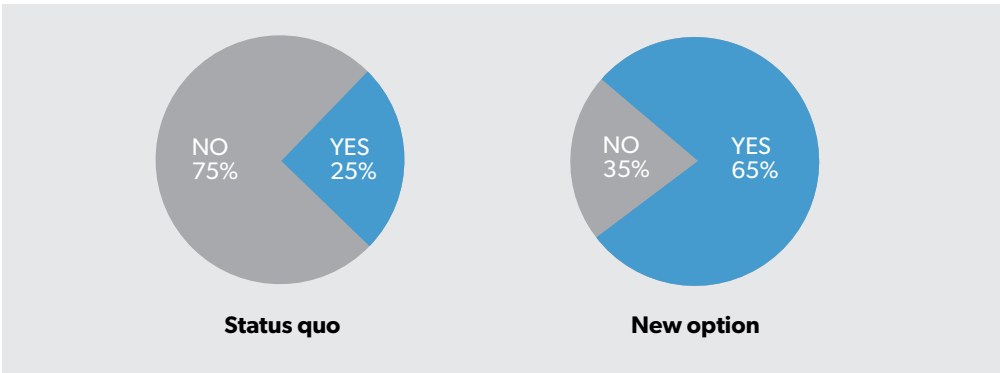


Figure 2: Outcome (successful = YES or NO) as a measure of effect for the two options.

The new option has greater expected costs (i.e., $\$1100 - \$100 = \$1000$ more). However, the new option is also more effective, with an expected success rate of 65% (40% more than the status quo at 25%).

Another way to summarize this effect difference is by looking at “number needed to treat” (NNT).⁸ Cordell⁹ states, “NNT provides a clinically useful ‘yardstick’ of the effort required to have a beneficial outcome or prevent a bad outcome with a therapy.” To compute NNT, we first calculate the difference in percentages (i.e., $65\% - 25\% = 40\%$) and then take its reciprocal (i.e., $1/40\% = 2.5$). Based on this finding, we can say that we need to use the new option in place of status quo for three people to achieve one additional success. Thus, effectiveness can be reported either as a straight difference or as the reciprocal of that difference (as NNT). The relationship between extra effect (ΔE) and NNT is shown in Figure 3. The open circle shows that the estimated $\Delta E = 0.4$ on the horizontal axis is the same as NNT ($1/0.4 = 2.5$ on the vertical axis).

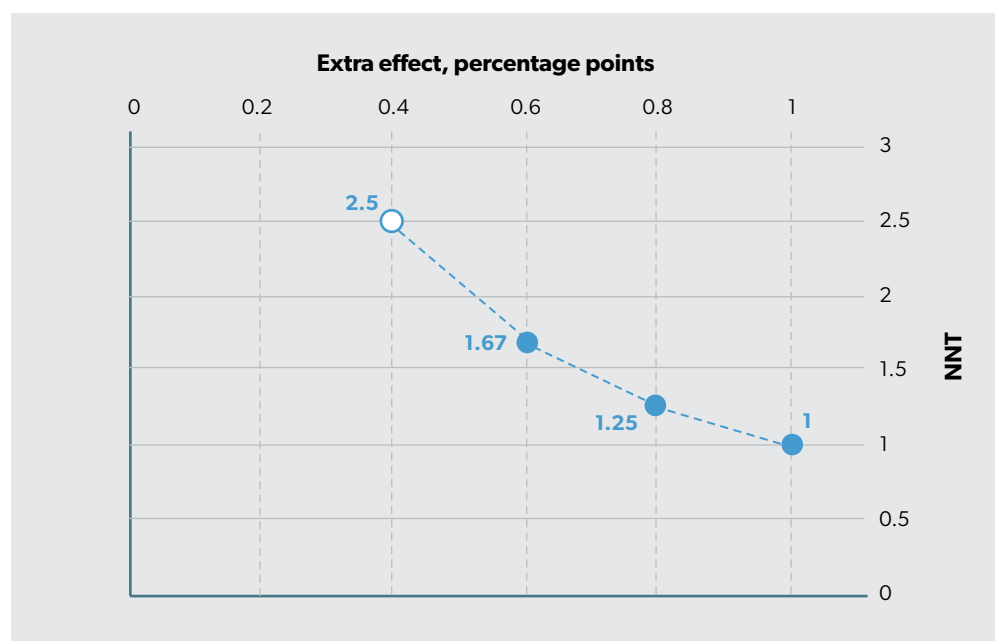


Figure 3: The relation between extra effect (which is binary) and number needed to treat (NNT).

Reporting cost and effect together

One of the main summary statistics used in CEA is the incremental cost-effectiveness ratio (ICER), the ratio of the extra cost (ΔC) to the extra effect (ΔE). In our example, the $ICER = \Delta C / \Delta E = \$1000 / 0.4$ more successes or \$2500 per additional success. Alternatively, the ICER can be calculated as

the product of ΔC and NNT, labeled “costs of additional treatment success” (COATS) by Weiss et al.¹⁰ Calculated this way, the ICER equals $\$1000 \times 2.5 = \2500 for one more success. Thus, whether you divide extra cost by extra effect ($\Delta C / \Delta E$) or multiply extra cost by NNT ($\Delta C \times \text{NNT}$), you get the same result for your economic evaluation.

Figure 4 illustrates the results of the ICER computed as the ratio of extra cost to extra effect (i.e., $\Delta C / \Delta E$). The slope of the line equals the ICER estimate. Also, the height of the line for extra effect = 1 is the ICER (i.e., the vertical height of the open circle in Figure 4).

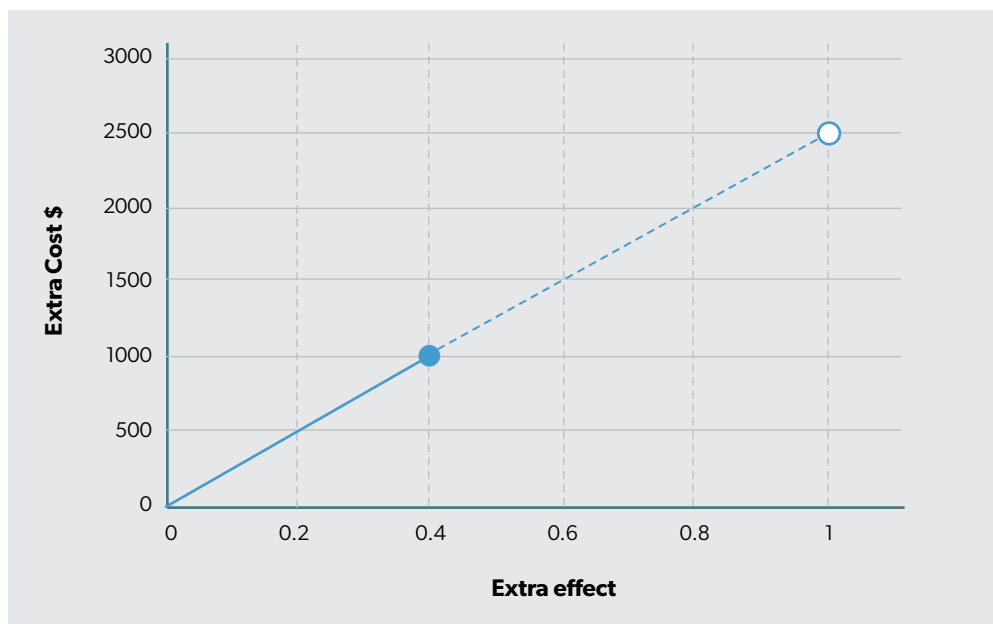


Figure 4: Illustrating the extra cost and extra effect estimate as well as the incremental cost-effectiveness ratio (ICER).

The solid circle in Figure 4 appears at the intersection of the estimated extra cost ($\Delta C = \$1000$ on the vertical axis) and extra effect ($\Delta E = 0.4$ on the horizontal axis). The open circle illustrates the extension of the ray from the origin to an extra effect of 1 (in Figure 4, the actual estimated difference is 0.4). The value of the vertical axis for an extra effect of 1 equals the ICER value $\Delta C / \Delta E = 2500$. If that ICER value is divided by the extra cost (ΔC), the result is NNT ($1 / \Delta E$). Therefore, the concept of NNT can be introduced into CEA. Figure 5 combines Figures 3 and 4 by adding a second vertical axis value on the right side to include NNT.

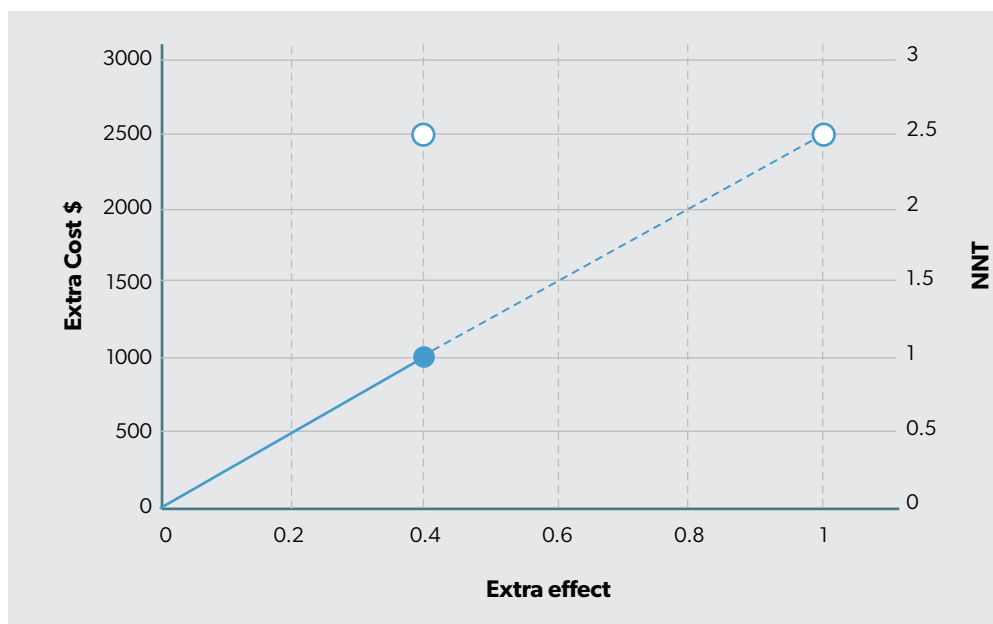


Figure 5: Illustrating the incremental cost-effectiveness ratio (ICER) and the number needed to treat (NNT).

Cost-effectiveness with a continuous outcome

In the previous example, the outcome variable was binary (either failure or success). However, often the outcome of interest is a continuous variable, such as life years, length of stay, disability days. In this case, the interpretation of NNT is slightly different because the interpretation of $1/\Delta E$ is slightly different. Estimating ΔE based on continuous data produces an NNT estimate of how many people need to switch to the new option to produce one more unit of outcome, rather than how many people need to be switched to help one more person.

For example, in a study of the cost-effectiveness of a collaborative mental health care program for people receiving short-term disability benefits, the authors considered both continuous and binary outcomes.¹¹ One continuous outcome was 16 fewer days lost from work, and a binary outcome was extra effect of a 0.23 percentage point improvement in return to work.

Although it is possible to compute NNT for both effect measures (i.e., $NNT = 1/16 = 0.0625$ and $NNT = 1/0.23 \approx 1/0.25 = 4$), it is easier to interpret the NNT result for the binary outcome. The NNT of 4 means that one must treat that many with the new intervention to achieve one additional positive outcome (in this case an additional employee returning to work) compared with the status quo. In other words, for every four people in your organization, one extra person will benefit if you implement the new option.

The other outcome, which is the continuous effect measure, has a larger ΔE and, therefore, a smaller $1/\Delta E$ which makes interpretation awkward. For every 0.0625 employees in your organization, 1 extra unit of outcome will be obtained if you implement the new option in place of status quo. For this reason, NNT is not often chosen as a summary statistic in CEA when the effect variable is continuous. In general, “NNTs can aid the interpretation of results... using continuous outcomes. Where possible, these should be reported alongside mean differences.”¹²

Although agreement on the use of NNT is not universal, previous studies provide a sense of different relative sizes. As Murad et al.¹³ suggest:

NNT became popular with the increased momentum of the evidence-based medicine (EBM) movement, which has become the modern approach for making healthcare decisions. NNT was promoted in EBM workshops and was used to compare interventions and think about their cost-effectiveness. For example, when comparing NNT for primary prevention of heart disease across various interventions over a five-year period, 44 people need to be treated with pravastatin to prevent one event of myocardial infarction, stroke, or death. In comparison, the NNT was 140 for beta-blockers, 346 for aspirin in men, and 426 for aspirin in women.¹⁴

Therefore, it is more typical to calculate sample averages with cost and outcome data and then compute their differences. For example, Table 1 shows the expected costs and outcomes for status quo and a new option using a hypothetical dataset.

Measure	New option	Status quo
Total cost	\$22 000	\$22 500
Sample size	20	225
Average cost	$\$22\,000/20 = \$1,110$	$\$22\,500/225 = \100
Difference in cost (ΔC)	$\$1,110 - \$100 = \$1000$	
Total effect	51.8	492.75
Sample size	20	225
Average effect	$51.8/20 = 2.59$	$492.75/225 = 2.19$
Difference in effect (ΔE)	$2.59 - 2.19 = 0.40$	
Incremental cost-effectiveness ratio (ICER): $\$1000/0.40 = \2500		

Table 1: Expected costs and effect (outcomes) resulting from a new option compared with the status quo.

With a cost-effectiveness dataset, expected costs and outcomes can be estimated using sample means. The extra cost is the difference in the mean costs, and the extra effect is the difference in the mean outcomes. The ICER is calculated as shown earlier as the ratio of extra cost to extra effect. In this case, the ICER estimate is $\Delta C/\Delta E = \$1000/0.4 = \2500 . As the new option provides 0.4 more units of outcome for an additional \$1000, it is producing at a rate of 1 additional unit of outcome for \$2500. Figure 4 illustrates the result.

Discussion

The example we explored focused on a new option that had an estimated ICER of \$2500 per additional success. This type of information can be challenging to integrate into decision-making. Because the ICER is a fraction, there is no way to know how it came to be \$2500 except by examining its constituent parts. The most intuitive way to do this is by using a graph like Figure 4. Looking at the horizontal and vertical axes, it becomes clear exactly how much more effect is produced by the new option (i.e., ΔE) and how much cost (i.e., ΔC) to expect per person. Based on the math for the ICER, buying 0.4 more units of outcome for \$1000 is the same deal as buying half that quantity (i.e., $\Delta E = 0.2$) for half the cost (i.e., $\Delta C = \$500$).

However, a leader may not feel this way. You may not view 0.2 more units for \$500 the same way you view 200 more units for \$500 000. In both cases, they yield an ICER of \$2500 (i.e., $\$500\,000/200 = \$500/0.2$). The solid circle in Figure 4 clarifies the estimated extra cost and extra effect. The ICER expresses what extra cost would be if extra effect were 1. In situations where $\Delta E \neq 1$, as in almost all cases, the ICER is neither relaying the expected extra cost nor the expected extra effect. It is reporting the extra cost at which one unit of additional outcome is being produced.

When effect is binary (e.g., the outcome of interest is of a yes/no variety), it may be easier to consider NNT in addition to ΔE . For example, an ICER of \$2500 for a new option that has a NNT = 1000 has an ICER of that magnitude because of the large NNT. Since the ICER is the product of ΔC and NNT, this means $\Delta C = \$2.50$. The driver of inefficiency here is the relatively small ΔE , which corresponds to the relatively large NNT. Plotting the results in Figure 4 would show a solid point on the line at 0.001 on the horizontal axis and \$2.50 on the vertical axis. This clarifies why the cost-effectiveness estimate, the ICER, turned out to be that number.

Some of the limitations of Figure 4 and Figure 5 as they are currently shown include not incorporating the overall budget, not characterizing statistical uncertainty, and not factoring in other important decision factors. Typically, CEA reports an ICER and that statistic does not describe the total cost of the new option to your organization. The new option's total cost is computed by adding on to the status quo's total cost the extra cost of the new option for every person receiving the new option. Thus, something may be cost-effective (e.g., a new hepatitis C drug), but prohibitively expensive (e.g., with an initial price tag for a full course of over \$80 000). As for the statistical variability of our estimates (e.g., we used our data to compute means and the data we used vary because of sampling variability), we recommend characterizing the uncertainty using a 95% confidence interval). Because of the technical requirements to make a 95% confidence interval for the ICER, we leave this topic for future discussion. Finally, because Figure 4 cannot show all of the other important decision factors when considering the ICER of \$2500 in its proper social and political context, we must accept CEA as just one part of the decision-making process. When changing from status quo to the new option, the trade-off of \$2500 in extra cost for an additional unit of outcome may be worth it. Or maybe not. The goal is to communicate an understanding of the efficiency of new opportunities. Leaders can use the CEA results along with other contextual considerations to arrive at and communicate their value judgements about new options.

In this article, we demonstrate how cost and outcome data can be analyzed to estimate the cost-effectiveness of a new option. The analysis involved calculating sample means for cost and effect and then computing the difference in the means (comparing a new option to the status quo). The ICER, the fraction of the difference in mean cost over the difference in mean effect is estimated from data this way. The cost-effectiveness statistic expresses the efficiency rate for one additional unit of outcome. If the outcome is binary, then one additional unit of outcome is one more person being helped. How many people must receive the new option to help one more person is the NNT concept. Thus, CEA can be viewed as encompassing estimates of both extra cost as well as NNT. When the effect measure is a continuous outcome, the focus is on the extra cost for one more unit of outcome. The results of cost-effectiveness can help inform decisions, but leaders must make value judgements, and these do not frequently appear in the figures.



The results of cost-effectiveness can help **inform decisions**, but leaders must make value judgements, and these do not frequently appear in the figures.

References

1. Hoch J, Dewa C. The occult of efficiency: Frank and Stein's advice for physician leaders. *Can J Physician Leadersh* 2024;10(1):29-32. <https://doi.org/10.37964/cr24780>
2. Hoch J, Dewa C. Cost is not a four-letter word: focus on what you can change. *Can J Physician Leadersh* 2024;10(2):64-8. <https://doi.org/10.37964/cr24783>
3. Hoch J, Dewa C. Maximizing success when it is the product of two things that go in opposite directions: the magic of elasticity. *Can J Physician Leadersh* 2024;10(3):84-91. <https://doi.org/10.37964/cr24784>
4. Hoch JS, Dewa CS. Cost-minimization analysis: showing something is cheaper does not necessarily mean it is better. *Can J Physician Leadersh* 2025;11(1):31-9. <https://doi.org/10.37964/cr24789>
5. Hoch JS, Dewa CS. Choosing one from many: efficiency in a multi-option world. *Can J Physician Leadersh* 2025;11(2):102-8. <https://doi.org/10.37964/cr24793>
6. Hoch JS. Improving the efficiency of cost-effectiveness analysis to inform policy decisions in the real world: lessons from the Pharmacoeconomics Research Unit at Cancer Care Ontario. In Zaric G (editor). *Operations research and health care policy*. New York: Springer; 2013: pp. 399-416.
7. Hunter RM, Franklin M. Whither decision-analytic modelling-based economic evaluation for health care decision making? *Pharmacoecon Open* 2024;8(4):507-10. <https://doi.org/10.1007/s41669-024-00492-9>
8. Laupacis A, Sackett DL, Roberts RS. An assessment of clinically useful measures of the consequences of treatment. *N Engl J Med* 1988;318(26):1728-33. <https://doi.org/10.1056/NEJM198806303182605>
9. Cordell WH. Number needed to treat (NNT). *Ann Emerg Med* 1999;33(4):433-6. [https://doi.org/10.1016/s0196-0644\(99\)70308-2](https://doi.org/10.1016/s0196-0644(99)70308-2)
10. Weiss M, Grom F, Porzolt F. Costs of additional treatment success (COATS) based on numbers needed to treat (NNT) is a simplified calculation method to facilitate physicians medical decisions with regards to monetary costs. *Br J Med Med Res* 2012;2(4):636-46. <https://doi.org/10.9734/BJMMR/2012/1379>
11. Dewa CS, Hoch JS, Carmen G, Guscott R, Anderson C. Cost, effectiveness, and cost-effectiveness of a collaborative mental health care program for people receiving short-term disability benefits for psychiatric disorders. *Can J Psychiatry* 2009;54(6):379-88. <https://doi.org/10.1177/070674370905400605>
12. Froud R, Eldridge S, Lall R, Underwood M. Estimating the number needed to treat from continuous outcomes in randomised controlled trials: methodological challenges and worked example using data from the UK Back Pain Exercise and Manipulation (BEAM) trial. *BMC Med Res Methodol* 2009;9:35. <https://doi.org/10.1186/1471-2288-9-35>
13. Murad MH, Falck-Ytter Y, Ramachandran N, Davitkov P, Morgan RL. The number needed to treat: it is time to bow out gracefully. *J Clin Epidemiol* 2025;187:111924. <https://doi.org/10.1016/j.jclinepi.2025.111924>
14. Ridker PM, MacFadyen JG, Fonseca FA, Genest J, Gotto AM, Kastelein JJ, et al. Number needed to treat with rosuvastatin to prevent first cardiovascular events and death among men and women with low low-density lipoprotein cholesterol and elevated high-sensitivity C-reactive protein: justification for the use of statins in prevention: an intervention trial evaluating rosuvastatin (JUPITER). *Circ Cardiovasc Qual Outcomes* 2009;2(6):616-23. <https://doi.org/10.1161/CIRCOUTCOMES.109.848473>

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The value of “physician quality leaders” in the Fraser Health Authority



Marshall Cheng, MD, Angela Tecson, RN,
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This case study explores the Fraser Health Authority’s (FHA) experience with the Physician Quality Leader (PQL) program, an initiative designed to embed physicians, who have formal training in quality improvement, into leadership roles. Surveys of stakeholders and participants indicate a high positive impact. PQLs have become trusted partners in system-level decision-making; they are respected for their clinical insight and quality improvement expertise. Executive leadership has reported effective collaboration with PQLs, highlighting improved alignment between frontline care and strategic goals. Overall, the PQL program has strengthened a culture of continuous improvement and multidisciplinary engagement across the FHA.

KEY WORDS: physician leaders, quality improvement, engagement

Cheng M, Tecson A, Matheson L, Williams D. The value of “physician quality leaders” in the Fraser Health Authority. *Can J Physician Leadersh* 2025;11(3): 152-155. <https://doi.org/10.37964/cr24799>

Hospitals require effective leadership to navigate today’s complex and dynamic health care environment. A cross-sectional study in the United States¹ found that top-performing hospitals were led disproportionately by physicians. Hospitals with physicians appointed to their hospital boards receive higher ratings by patients and show lower morbidity rates.² In addition, health care quality improvement (QI) results in better patient outcomes, hospital performance, and staff morale.³ However, although more physicians are entering leadership roles in health care, there are

limited leadership models that emphasize QI and patient safety.⁴ Among the diverse group of professionals assuming leadership positions in health care, physicians with QI training offer a unique perspective and a skill set that will help shape the future of health care.^{4,5}

The Fraser Health Authority (FHA) is the largest and fastest-growing public health authority in British Columbia. It serves 1.9 million people with 13 acute care hospitals, 9 community hospitals, and an outpatient and surgery centre. In 2020, the FHA recognized the need for physician leaders trained in advanced QI methods. As a result, it created positions of “physician quality leads” (PQLs) in its Clinical Quality and Patient Safety (CQPS) portfolio. The aim was to support hospital and program leadership in achieving improvement in FHA’s defined quality and safety priorities using continuous QI methods.

A PQL is a physician passionate about fostering a culture of improvement and safety in clinical services. PQLs are responsible for establishing evidence-based patient care models to enhance patient safety at their acute care site or in their program. They are also accountable for promoting QI and supporting QI initiatives in their assigned hospital. The PQL is an FHA-funded contractual position of 1-year duration. Applicants are screened and interviewed by senior CQPS leadership. Initially, PQLs were assigned to all acute care hospitals in the FHA. The FHA has now expanded the responsibilities of the PQLs into medical programs such as the critical care, medicine, and mental health networks, and the maternal infant child and youth program. Currently, 17 PQLs have been assigned to hospitals and medical programs. All have completed the physician QI certification program, an initiative of Doctors of British Columbia’s Specialist Services Committee. In addition, they received coaching, teaching, and leadership training. As a result of these initiatives, in 2023, Accreditation Canada recognized FHA’s dedication to continuous QI efforts.

PQLs bridge the gaps between clinical care, administrative strategy, and QI science to ensure that decisions are made with an understanding of patient care, operational efficiency, and data-driven approaches. They serve as QI advisors, coaches, mentors, and teachers, engaging physicians and frontline staff and supporting leadership. PQLs provide value by fostering collaboration, developing quality of care and patient safety initiatives, and promoting QI.



PQLs bridge the gaps between clinical care, administrative strategy, and QI science to ensure that decisions are made with an **understanding of patient care, operational efficiency, and data-driven approaches.**

Health care comprises a host of special interest groups; their members use specialized systems and approaches to their work. However, collaboration across medical disciplines improves patient outcomes and leads to more effective use of available resources. PQLs work across medical disciplines, bridging gaps between health care providers and fostering collaborative improvement efforts. They collaborate with hospital leadership to create local quality governance structures and committees.

In a recent survey of PQLs in the FHA, 100% reported feeling confident speaking up about patient safety concerns to hospital administration, and 96% believed their administrators acted on their suggestions. PQLs are members of local quality steering committees and hospital-based QI working groups. They offer physician insight into quality and patient safety and have been instrumental in incorporating quality into strategic visions.

In a 2024 survey among senior FHA administration, five of seven (71%) hospital administrators felt that PQLs were willing to collaborate with major hospital initiatives. Four of the seven strongly agreed that PQLs collaborated on key initiatives. PQLs also actively collaborate with other quality teams to advance patient care. For example, togetherQI (tQI) is a FHA quality improvement team enabling acute care and long-term care hospital teams to use QI at point-of-care. PQLs will often provide physician engagement and a physician perspective on tQI projects. As data experts, PQLs will take part in planning data collection and interpretation for QI projects.

As effective leaders, PQLs are drivers of quality care. In 2024, for example, PQLs led communications about and implementation of criteria-led discharge in the FHA's access and flow portfolio. They performed interdepartmental mapping of hospital patient flow and developed patient transfer protocols. PQLs support FHA innovation, such as artificial intelligence predictive tools and contribute to the FHA's reputation as an innovative health care leader. They directed work with information technology experts on artificial intelligence monitoring and surveillance tool development, such as sepsis risk and surveillance tools. PQLs continue to direct the prioritization of data collection in the staged roll-out of the FHA's new electronic medical record system.

Health care system leadership and transformation requires physician and frontline health care provider engagement.⁴ PQLs effectively promote QI among medical and allied staff. Recently, PQLs developed and implemented leadership-supported quality and safety walkabout

rounds at an acute care hospital to further engage frontline health care providers in continuous improvement. In a 2025 survey of senior hospital administrators, 80% of responders felt that PQLs helped shift culture toward continuous learning and improvement.

PQLs added depth to the FHA CQPS portfolio by providing links among physician clinicians, QI methods, and leadership. They achieved this through QI expertise, collaboration, and advocacy for quality patient care and safety. The FHA believes in the value of PQLs. Among surveyed hospital administrators, 83% agreed that PQLs enhance patient care quality and safety. Recently, a hospital administrator stated: “I love both my PQI leads... and truly would not know what to do without their ongoing passion and leadership. This is a great role for our sites.”

Despite the demonstrated value of PQLs, several challenges remain. Balancing clinical responsibilities with leadership and QI activities can limit time for engagement and project follow-through. Embedding PQLs into existing hospital governance and quality structures requires alignment with multiple stakeholders, and resistance to new practices can slow adoption. Scalability to other health authorities is untested. We believe that success would depend on organizational culture, resources, and leadership support. Finally, sustainability of the role relies on continued funding, institutional recognition, and formalized career pathways to retain experienced PQLs. Currently, the FHA is planning a study to illustrate the value of this role. They hope to see positive results to help them advocate for PQLs in other health authorities.

References

1. Goodall AH. Physician-leaders and hospital performance: is there an association? *Soc Sci Med* 2011;73(4):535-9. <https://doi.org/10.1016/j.socscimed.2011.06.025>
2. Veronesi G, Kirkpatrick I, Vallascas F. Clinicians on the board: what difference does it make? *Soc Sci Med* 2013;77:147-55. <https://doi.org/10.1016/j.socscimed.2012.11.019>
3. Backhouse A, Ogunlayi F. Quality improvement into practice. *BMJ* 2020;368:m865. <https://doi.org/10.1136/bmj.m865>
4. Donaldson LJ. Safe high quality health care: investing in tomorrow's leaders. *BMJ Qual Safe* 2001;10(suppl 2):ii8-12.
5. Pronovost PJ, Miller MR, Wachter RM, Meyer GS. Perspective: physician leadership in quality. *Acad Med* 2009;84(12):1651-6. <https://doi.org/10.1097/ACM.0b013e3181bce0ee>

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Disclosure: This study received no funding or sponsorship.

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Looking back on a clinical academic career: **a woman physician's leadership journey**



Sandra Fisman, MB

This invited article provides a retrospective composite of the experience and some of the choices made during a clinical academic career. I reflect on joys and challenges experienced through the years and seek to advise young physicians who are on the threshold of a medical career.

Fisman S. Looking back on a clinical academic career: a woman physician's leadership journey. *Can J Physician Leadersh* 2025;11(3): 156-164. <https://doi.org/10.37964/cr24800>

I have learned a lot over my long career as a clinical academic leader. Being a pragmatist, I will try to synthesize what may be the most valuable lessons for you, as current and future leaders, who can move our health care system to a better place.

I have enjoyed a productive career as a child and adolescent psychiatrist and senior administrator. In particular, I have been passionate about my work with children, youth, and families and have experienced joy in changing the developmental trajectory of troubled and troubling young people to happy and productive citizens.

I was born at the tail end of the "traditionalist generation" and on the brink of the "baby boom." So, it will not come as a surprise that my early role models were two women physicians, living and working in the traditionalist era. They had each managed to combine successful medical careers with



child rearing and maintaining a household. One of these women held a leadership position as head of an anesthesiology department in a large academically affiliated hospital. The other was a pediatrician in a community hospital. These women were clearly ahead of their time, and both lived into their early nineties.

My story of development as a female clinical academic is an intertwined narrative between my personal life and my career. In the course of my life and work, there have been progressive changes for women in terms of gender equity, particularly at the leadership level. Beginning in the 1970s, we have seen many changes in female prominence in the professions, including medicine.

Enrolment of women is much higher in what were traditionally male-dominated professions: medicine, law, architecture, and engineering. There has been growth and more acceptance in places where women had not previously been welcome, such as surgery and the surgical subspecialties. However, a gap remains between the percentage of women who have entered these positions and those who have gained senior positions. Data still indicate that women medical school faculty are promoted more slowly than men. Gender differences are not explained by hours worked or time since graduation.¹

With this backdrop, what helpful advice can I share with young people embarking on an academic career? I believe that we still have an important task ahead of us. This involves the need for a real change in our academic culture to allow people of all genders to thrive. Such a culture shift is premised on the universal adoption of a values-based framework that embraces collaborative, mutually respectful relationships, including trust

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There has been **growth and more acceptance** in places where women had not previously been welcome, such as surgery and the surgical subspecialties. However, a **gap remains** between the percentage of women who have entered these positions and those who have gained senior positions.

CSPL Coaching Network



Shayne Taback

MD, FRCPC, CED, ACC

Mantra:

Our vision — vibrant physicians thriving in a strong health care system. Our mission — support Canadian physicians to lead significant positive change. Our belief — physician leadership, physician wellness, and quality of care are intrinsically linked

and promotion of personal integrity.² It is these relationships that have the greatest chance of taking us to an academic win-win common ground.

In a practical sense, being part of a culture and values transformation requires that newly hired academic faculty seek out the right mentoring and role modelling early in their academic career. A successful mentorship relationship requires a genuine commitment to the process, adequate time spent together, and syntonik role modelling by the mentor.³ Same-gender role models are necessary for all genders in the early phases of their career development, but generally with academic growth there is a need for more than one mentor who may or may not be of the same gender.

In fact, the blurring of stereotypical gender role behaviour, which we have been able to talk about so much more comfortably over the last decade, will allow us to make progress in trusting one another and accepting our differences. Thus, the stereotypically male characteristics of competitiveness, ambitiousness, and assertiveness are important for success in competitive areas. However, tempering these with stereotypically female characteristics of flexibility, being more nurturing, sharing information, and supporting others is valuable in generating healthy personal and organizational growth.

Let me turn to some personal advice for those on the threshold of an academic career in medicine. It may not resonate for everyone as you set your career direction. Feel free to pick and choose and have the courage to shift direction in mid-career if your aspirations change. Ultimately, the best balance will come from your personal choices and your passion about those choices.

I would like to begin with medical leadership. There is no question in my mind that leadership has its rewards. Becoming a medical leader may be planned for some. Others may fall into leadership opportunities, as doors incidentally open. This has been the story of my life. In either event, learning to be a leader and taking advantage of leadership development and coaching experiences are both tremendously helpful.² Although stylized leadership courses (some more than others) are invaluable in providing “tools” for effective leadership, one learns a lot “on the job.” The art is being able to apply the tools to the learning from experience.⁴

Among the blessings of academic medicine are the many opportunities for leadership experience and the relationships that evolve from these. Many of us begin with education leadership roles, others with research and/or



Feel free to pick and choose and have the courage to **shift direction in mid-career if your aspirations change.**

Ultimately, the best balance will come from your personal choices and your passion about those choices.

clinical leadership. Maintaining a clinical role concurrent with a leadership role, as well as having a strong clinical identity before taking on a medical leadership role, allows one to remain true to the needs and realities of good patient care.

There continue to be enormous challenges to health care delivery. Difficulties in access to primary care have resulted in inappropriate use of hospital emergency services. There is consequential overcrowding and long waits for medical and surgical beds and procedures and a lack of timely access to mental health and addiction care.

Often referred to as “hallway care,” this has reached crisis proportions for health care funders, hospital administrators, health care providers, and our patients and families. At the other end of the equation, there are obstacles to the flow from acute care into stepdown community care and long-term care facilities when needed. These challenges have been further compounded by escalating health care costs, budgetary restraints, an aging demographic, and the recent pandemic. There will be challenges in taking up leadership roles with greater levels of responsibility. You may have to be the ultimate decision-maker and make some tough and even unpopular decisions to serve the greater good. Having the courage to stand up to some potentially fierce criticism will be easier if you have the buffer of strong collaborative relationships with those around you.

But medical leadership is not for all of us. Your strengths may lie elsewhere. In the context of mentorship, make choices that use your strengths. Find others in your midst who can complement your strengths and skills. There is far more joy in working at what we are good at than struggling to remediate our weaknesses.

Be sure to maintain your family as a priority, and they will be your ultimate source of strength. Among the amazing career mentors that I have had, one of my senior mentors advised: “Don’t wait too long to have children because biological clocks do run down, and it is in fact easier to manage the sheer work of career and family when you are younger.” Many women, both in medicine and other careers, will intentionally choose not to have children.

I would like to conclude with a collection of Cs that are potential enablers for successful clinical academic leadership.



Organizational culture

Whether in health care or any other organization, the organizational culture begins at the top and filters down through all levels. It is reflected in the way individual members relate to one another and to those who are the “customers” of the organization. In this way, a culture of compassion and caring, beginning with the senior leadership team, will filter down to the care providers in an organization.⁵

Compassion and caring

Caring is seen as a deliberate act that creates and sustains relationships. Ideally, organizations should foster cultures where providers are encouraged and inspired to be caring toward patients and coworkers. Compassion is a personal moral orientation and sense of responsibility toward others. Health care organizations and educational institutions should hire or admit individuals with innate compassion. However, although the capacity for empathy is important, it can be taught and cultivated. It is action that is combined with empathy that enables compassionate care.⁵

Nurturing and sustaining compassionate care

I had the honour of being part of the Association of Medical Services (AMS) Phoenix Program, initiated in 2012. AMS is a small charitable organization with an impressive history as a catalyst for change. It has had, and continues to have, a profound impact on the health care of Canadians. In 2012, AMS launched a multi-year initiative: the AMS Phoenix — A Call to Caring, which focuses on making a positive and lasting difference in how health professionals nurture and sustain the learning and practice of compassionate care. I chaired the AMS Phoenix Fellowship Committee, which became a cornerstone of the program. Dr. Rita Charon is the founder and executive director of the Narrative Medicine Master’s Program at Columbia University in New York City. Her work in narrative medicine partly informed our Fellowship Program.

Compassion in an age of digital care

Health care workers usually choose their profession because they are drawn to show compassion to those who suffer. The rising prevalence of burnout and other consequences of workplace stress emphasize the need for compassionate approaches toward health care workers as well.



Compassion is a personal moral orientation and sense of responsibility toward others. Health care organizations and educational institutions should **hire or admit individuals with innate compassion.**

There have been multiple contributors to workplace stress, including the COVID-19 pandemic. However, it is more likely that the inevitable increase in technology has added to this stress. This includes the demands of the electronic medical record and the introduction of AI to health care. Hopefully, in the future, technology can be harnessed by the organization to support more compassionate ends.

Collaboration and cooperation

Brenda Zimmerman, who was one of my senior mentors, wrote about the Generative Relationship Star. In complex contexts such as our health care system, generative relationships allow the co-creation of innovative solutions and services. Diagrammatically, the points of a four-pointed star each depict one key aspect of a generative relationship: separateness, talking, action, and reason to work together. When the four points of the star are equal, there is the capacity to create something that is greater than the sum of the parts.⁶ Its greatest value is to reframe a conversation with a focus on positive change. Collaboration and cooperation, when healthy, are not mutually exclusive. Together they can be a catalyst in the pursuit of excellence.

Consensus building

A strong academic leader will be committed to building consensus among all who provide care and the multiple contingents who receive care within a health care system. This will ensure the wellness of the providers and include working conditions that enable them to make healthy and balanced life choices. Success is measured not only in the number of patients who are cared for but also in the quality of care they receive. The diverse cultural milieu of North American health care contexts makes representation an important marker for health care organizations. This is particularly true for members of our society who have historically suffered neglect, violence, and mistreatment by colonizers and the brand of medicine they brought with them. As a leader, you must ensure consensus across the organizational value system that goes well beyond a code of conduct that is framed and posted on hospital walls.



Self-confidence

There will be challenges in taking up leadership roles with greater levels of responsibility. You may have to be the ultimate decision-maker and make some tough and even unpopular decisions to serve the greater good. Having the courage to stand up to some potentially fierce criticism will be easier if you have self-confidence and the buffer of strong collaborative relationships with those around you.

Career and family

In retrospect, a delay in training made no difference to my academic progression overall, a view shared by one of my mentors. My career was punctuated by the birth of four children who have grown up to be successful adults. Simultaneously, I have had a successful academic career. A wise member of the senior leadership team once told me to always put your family first. If something happens to you, the hospital/medical school will grieve for a week or two and then recruit your replacement. However, your family will miss you forever. Flexible career development opportunities that incorporate a range of options can serve to accommodate women with growing families.

Concept of team-based care

Another of my important mentors introduced me to the valuable concept and practice of team-based care. Moreover, she introduced the senior leadership team to a book by Tom Rath and Barry Conchie: *Strengths Based Leadership*.⁷ This book and other versions provide an account of how the most successful people start with dominant talents, then add skills and knowledge to multiply their raw talent.

To establish your five top talents, *Strengths Based Leadership* provides a strength-finder exercise that takes about 30 minutes to complete. You will then receive a summary of your top five strengths and their meaning for you.

The strengths we bring to work vary. A successful team will have a mix of strengths and weaknesses that complement one another. We can try to mitigate and improve our weaknesses, but they will never become our strengths. Using our strengths is associated with excitement about coming to work and positive team morale.



Flexible career development opportunities that incorporate a range of options **can serve to accommodate women with growing families.**



Person-centred care

In taking the Hippocratic Oath, we vow to “respect the hard-won scientific gains of those physicians in whose steps I walk and gladly share such knowledge as is mine with those who are to follow.” We tend to forget that we have chosen a career in health care to take care of ill people. It is at the interface of patient and provider that a therapeutic alliance develops. The nature of this interface will change throughout the lifespan.

As a child and youth psychiatrist, adolescent development has dominated my perspective. Issues of consent and capacity, cognitive development and emotional maturity, and the variance of phases of adolescent development have influenced the therapeutic connection.

Final comments

Stay grounded in your values. Preserve your academic interests, your curiosity, and your enquiring mind. Always be passionate about your work. When you lose compassion, it is likely time to change direction. Be willing to take some risks. Enjoy relationships with colleagues who are stimulating and have similar interests. Seek out mentors, formal and informal, medical and non-medical, who help you to promote and develop your strengths. Affiliate with professional groups and establish strong connections but learn to say no when you need to.

Finally build your own resilience. Your inner strength may come from refueling activities, including hobbies, interests, and relationships (inside and outside of work). Maintain your family as a priority, and they will be your ultimate source of strength.

As I reach Erikson's stage of wisdom versus despair,⁸ I hope I have been an inspirational role model and a wise and supportive mentor. I feel so privileged to have made a difference in the lives of youth and families as well as learners and interprofessional colleagues. From my perspective, working in interprofessional teams, whether based in clinical care, education, administration, or research, has been the ideal.

My hope is that you, as current, emerging, and future leaders, will sustain and develop initiatives that enable a well-functioning, accessible, evidence-based, and effective health care system. As you determine your career direction, remember (paraphrasing actor James Dean), you can set the sails, but you can't control the wind. Life-cycle events may dictate ebb and flow in your career. But the journey continues.

References

1. Pope JE. Mentoring women in medicine: a personal perspective. *Lancet* 2018;391:520-1. [https://doi.org/10.1016/S0140-6736\(18\)30243-5](https://doi.org/10.1016/S0140-6736(18)30243-5)
2. Jarosz J. The cube of coaching effectiveness. *Int J Evid Based Coach Mentor* 2023;21(1):31-39. <https://pubmed.ncbi.nlm.nih.gov/11700373>
3. Steele MM, Fisman S, Davidson B. Mentoring and role models in recruitment and retention: a study of junior medical faculty perceptions. *Med Teach* 2012;35(5):e1130-8. <https://doi.org/10.3109/0142159X.2012.735382>
4. Dickens P, Fisman S, Grossman K. Strategic leadership development for physicians. *Can J Physician Leadersh* 2016;2(3):80-86. <https://cjpl.org/wp-content/uploads/2023/11/cjplvolume2number3.pdf>
5. Martimianakis T, Khan R, Stergiopoulos E, Briggs M, Fisman S. Toward compassionate healthcare organizations. In Hodges BD, Paech G, Bennett J, editors. *Without compassion, there is no healthcare: leading with care in a technological age*. Montréal: McGill-Queen's University Press; 2019.
6. Zimmerman B, Lindberg C, Plesk P. *Edgware: lessons from complexity science for health care leaders*. 2nd ed. Toronto: V H A, Inc.; 2008.
7. Rath T, Conchie B. *Strengths based leadership: great leaders, teams, and why people follow*. New York: Gallup Press; 2008.
8. Erickson EH. *Childhood and society*. New York: Norton; 1950.

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Mantra:

"The great thing, if one can, is to stop regarding all the unpleasant things as interruptions of one's "own," or "real" life. The truth is of course that what one calls the interruptions are precisely one's real life." -C.S. Lewis

Conflict Resilience: Negotiating Disagreement Without Giving Up or Giving In

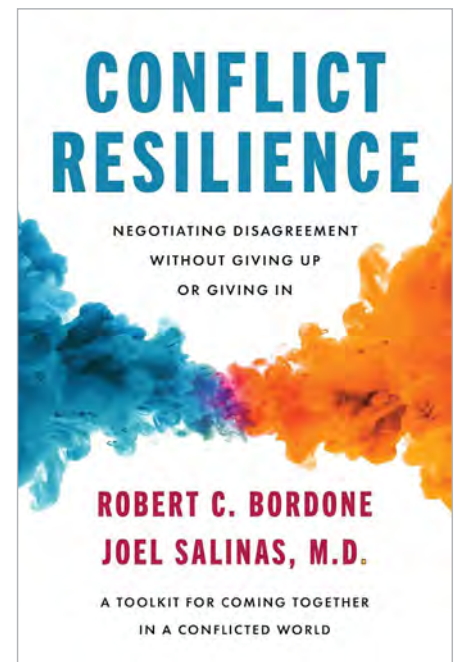


Robert C. Bordone, Joel Salinas, MD
Harper Business; March 2025
Reviewed by **Ruth Vilayil, MD**

In medicine, we're trained to diagnose and treat disease, but rarely are we taught how to navigate workplace conflict. For many of us, it feels like going into a Code Blue without any ACLS algorithm cards.

Conflict Resilience is written by a Harvard Law professor and a neurologist. Using stories and neuroscience, they unpack the modern need for the title concept, which they define as "the ability to genuinely sit with and grow from conflict." They describe a structured approach to preparing for and facing conflict, not shying away from mundane and even controversial example topics, and including brain science along the way. According to their framework: NAME the conflict, EXPLORE fully the issues involved, COMMIT to doing your part in facing the conflict.

Bordone and Salinas's intended audience is any lay person or professional who finds conflict difficult to navigate. It is an excellent book for any physician leader, as the complexity of health care creates ripe ground for potential conflict. Although several excellent books on this topic already exist, this one is entirely different in its focus on building a comprehensive approach from the inside out, underpinned by the neuroscience that explains what works and what doesn't. In addition, the authors use contemporary and relatable examples. Rather than discussing geopolitical scenarios or simple price bargaining, they give examples of a health care workplace disagreement or differing political opinions among family members at Thanksgiving.



These are my top three leadership lessons learned from *Conflict Resilience*.

The concept of conflict tolerance

This involves both *conflict recognition* (our internal tendency for labeling an event as “conflict”) and *conflict holding* (our ability to sit with conflict). This varies for different people. Understanding this improves our self-awareness as a leader and increases empathy for those on our teams who are having a different experience of conflict than we are.

Three steps to better conflict negotiation as a leader:

1. **Mirror work:** self-examination and brutal honesty with ourselves around our true interests and motivations in the conflict.
2. **Chair work:** practising conversations with different sides of ourselves on the topic at hand.
3. **Table work:** bravely bringing the conflict to the table with our counterparts, truly understanding their side while also communicating our point of view, resisting the urge to run away. I conceptualize this as the ability to “listen up, speak up.”

Information and examples on leading cultural change (whether you are in charge and have a title or not)

Individual up-skilling is not enough; the entire culture around the organization’s approach to conflict must shift as well. There are valuable pearls of wisdom here from those who have pioneered seismic changes.

This book is packed with stories, research, and practical tools. For physician leaders in particular, this book gives wisdom not only for our own up-skilling in the area of conflict negotiation, but also insight into how those we lead may be experiencing it too. That empathy can move conflicts forward monumentally. As a physician, Salinas’s stories and insights are completely relatable.

Unfortunately, because of the book’s comprehensiveness, readers can lose track of which section or skill they’re currently focusing on. Diagrams would have been a nice addition to keep the reader oriented. However, it remains a practical, innovative guide that can help us translate book-knowledge into action in our personal lives and organizations.

While navigating conflict may never be algorithmic like a Code Blue, the frameworks in this book are a great way to confidently approach — even embrace — any conflict that comes your way.

Author

Dr. Ruth Vilayil, a specialist in obstetrics and gynecology and a fellow of the Royal College of Surgeons of Canada, led a renowned international women’s hospital in Uganda. Now regional division head — gynecology for Fraser Health Authority and clinical assistant professor at UBC, she holds certificates in physician quality improvement and leadership.

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