

Family physician perspectives on primary care reform priorities: a cross-sectional survey

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Abstract

Background: The province of British Columbia is facing a family physician shortage despite consistent increases in the number of physicians per capita and ongoing reforms to address the shortage. We identify physicians' priorities for structural reform, describe the alignment of those priorities with BC's suite of reforms and compare responses between established physicians and those new to practice; we also assessed rates of burnout.

Methods: All family physicians credentialed within Vancouver Coastal Health in 2018 were invited to participate in a cross-sectional survey. Respondents were asked about their practice model and characteristics, demographics, level of burnout and reform priorities. We used χ^2 tests and multivariable logistic regression to investigate associations between personal and practice characteristics, burnout and reform priorities.

Results: Of the 1017 family physicians invited to participate, 525 (51.6%) responded. Of these, 399 (76.0%) indicated a need for fundamental change to how primary care is delivered; 244 (46.4%) would prefer to be a clinic employee rather than a small business owner. Other reform priorities included options to practise in a team (stated as very important by 69.6% of respondents), direct funding for team roles (66.7%), direct clinic funding (59.8%), part-time work options (64.7%), and ability to take planned vacations and parental leave (81.1%). The importance of individual reform priorities varied based on the participants' model of practice, location and years in practice. Of respondents, 108 (21.1%) had experienced a high level of burnout.

Interpretation: Almost half of family physicians would prefer to be employees rather than small business owners and over 20% reported a high level of burnout. Practice models offering direct employment model have very limited availability and are not included in the current suite of reforms in BC, potentially pulling physicians away from community-based family medicine and into other models or specialties.

The BC Ministry of Health began implementing a suite of structural primary care reforms in 2017 to address the worsening shortage of family physicians (FPs) and to introduce an integrated system of primary and community care.^{1,2} However, implementation has been slower than initially forecast.^{1,2} Under the current proposed reforms, practices would largely remain FP-owned and -operated, and fee-for-service remuneration would continue to be the main payment scheme,² with options for service contracts for some providers.³ Some other Canadian provinces have moved away from this FP-owned, fee-for-service model and have incorporated team-based care, nonphysician health professionals and alternative forms of remuneration.^{4,5}

In British Columbia, despite little actual structural change, FPs appear to be moving toward alternative models of practice such as working part-time in hospitals, long-term care, clinically focused practice or walk-in clinics.⁶⁻⁹ At the same time, rates of stress and burnout among FPs are high,¹⁰⁻¹³ and concerns about poor work-life balance¹⁴⁻¹⁶ and burden of administrative work^{14,17} are raised frequently. The shift in

practice models appears to be occurring at higher rates for FPs who are new to practice.¹⁸⁻²⁰ The reasons for this shift have not yet been directly evaluated. However, the net effect may be reduced capacity for longitudinal, community-based family medicine,²¹ with potential for worsening access for patients as more established FPs retire.

Competing interests: Nardia Strydom reports she is a family physician with privileges at Vancouver Coastal Health (VCH). Her work as a physician is compensated by British Columbia's fee-for-service program. At the time of the survey distribution, she was the regional head of the Department of Family and Community Medicine, VCH and was responsible for designing and distributing the credentialing survey. Rita McCracken reports she is a family physician with privileges at VCH. Her work as a physician is compensated by both BC's fee-for-service and alternative payment plans. At the time of the survey distribution, she was the associate head of the Department of Family Practice, Providence Health Care and was involved in designing the credentialing survey.

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There is a need to assess whether the current plans for structural reforms are aligned with physician perspectives on the specific strategies needed to improve access to primary care. Assessing this alignment could facilitate creation of a pragmatic policy shift to address the FP shortage. The objectives of this study are therefore to identify specific priorities for structural health system reform, describe the alignment of those priorities with BC's slated suite of evolving primary care reforms and compare responses between established FPs and those who are new to practice. Additionally, we measure and compare rates of burnout between newer and established family physicians.

Methods

Design

This is a cross-sectional survey-based study of physicians with a primary care specialty designation. We followed the Checklist for Reporting Results of Internet E-Surveys (CHERRIES)²² to report on the methods used for this study.

Setting and participants

This quality improvement project was conducted within Vancouver Coastal Health (VCH), 1 of 5 regional health authorities in BC. In 2018, about 1900 FPs had publicly posted work addresses, registered with the College of Physicians and Surgeons of BC, that fell within the geographical boundaries of VCH. Of these, 1017 (53.5%) had privileges to provide services at VCH facilities. Data for this project were drawn from an annual credentialling survey of physicians seeking to renew their VCH privileges (Appendix 1, available at www.cmajopen.ca/content/9/2/E466/suppl/DC1). All 1017 FPs who had active privileges at VCH facilities in 2018 were invited to participate.

Data sources

The voluntary credentialling survey was designed by the Department of Family and Community Medicine at VCH to capture annual information on physician practice models, patterns and demographic characteristics, in order to inform workforce planning for the health authority. Demographic data included sex, number of years in practice, location of training (within or outside Canada) and location of practice (rural or urban). Locations were defined as rural or urban based on the existing classification used by the BC Ministry of Health and Doctors of BC.²³

Survey respondents were asked to describe their current work hours and on-call responsibilities and whether they felt that any changes to how primary care is being delivered in BC were needed. Respondents were asked specifically about their preferences for an alternative (non-fee-for-service) remuneration model (such as capitation or salary) and whether they would prefer to be an employee of a clinic rather than a small business owner.

Guided by the content of the Ministry of Health's policy direction for primary and community care,¹ participants were asked to consider what would be needed for them to provide longitudinal community-based care to more people and to

rate a series of specific potential reforms. These reforms covered payment structure, work structure and job benefits. Response options were "not important," "somewhat important" or "very important." In addition to the reform options identified in the Ministry of Health's policy directions,¹⁻³ 3 additional options were added based on an existing survey of practice preferences for newly practising FPs in BC: committing for a fixed number of years, option to work part-time, and ability to take vacation and parental leaves.²⁰

We assessed level of burnout using a validated single-item measure: "I feel burned out from my work."^{24,25} Responses were measured on a 7-point scale from "never" to "every day." West and colleagues define a cut-point of 4 (feeling burned out once per week or more) as "high levels of burnout."²⁴

Our 2 key independent variables of interest were newness to practice and model of practice. We considered physicians who completed medical school within the last 12 years (i.e., had a maximum of 10 years in practice after residency) to be new to practice. There is no published standard to define "new to practice." We assumed that after 10 years, a practitioner would be more likely to have established their typical model of practice and that their established model could likely predict how they will contribute to the health care system during their career. Models of practice included full-time community-based primary care (CBPC; > 37.5 h per week), mostly CBPC plus other work (20–37.5 h per week CBPC), mostly other work but some CBPC (< 20 h per week CBPC), full-time hospital or inpatient care only, or locum only.

We sought feedback from an internal physician advisory group from the VCH Department of Family and Community Medicine, consisting of 12 practising FPs, and incorporated their feedback before administering the survey. The survey was administered online through REDCap between Jan. 30, and Apr. 15, 2018. Email reminders were sent 1 and 5 weeks after the initial invitation.

Statistical analysis

We dichotomized responses to the reform priority questions by grouping together "somewhat important," "not important" and "unsure." We conducted sensitivity analyses by grouping "somewhat" and "very important" and grouping "not important" and "unsure" to determine whether this alternative resulted in similar patterns by practice model and newness to practice. The decision to dichotomize was made for ease of interpretation of multivariable model results. We compared physicians who were new to practice with established physicians at the bivariate level according to model of practice, demographic characteristics, burnout and reform priorities using χ^2 tests.

We used multivariable logistic regression to evaluate the associations between dichotomous burnout and reform priority measures with our 2 key independent variables of interest: newness to practice and model of practice. In all cases, we adjusted for the potentially confounding effects of gender, training location, practice location and weekly work hours. We report results as odd ratios (ORs) and 95%

confidence intervals (CIs), and we considered results to be statistically significant at $p < 0.05$. Survey respondents with missing values for specific outcome variables were excluded from those models. All analyses were conducted using Stata/IC, version 15.1.

Ethics approval

This project was reviewed by the University of British Columbia — Providence Health Care Research Ethics Board. It was deemed to be exempt from the requirement for ethics approval because it is a quality improvement study consistent with Article 2.5 of the *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.²⁶

Results

We invited 1017 FPs seeking a renewal of privileges to complete the survey. Of those, 525 responded and completed the core model of practice and demographic questions, a 51.6% response rate. This sample included 291 (55.5%) women, 112 (21.1%) international medical graduates and 111 (21.1%) physicians who do at least some of their work in a rural area (Table 1). Physicians who were new to practice differed from established physicians on all variables with the exception of provision of call coverage. They worked more

hours on average (46.2 h v. 43.0 h per week), but less often entirely in CBPC (15.4% v. 24.3%) or partly in CBPC (24.0% v. 28.3%) and more often as a locum (22.9% v. 9.4%) than established physicians.

Burnout

In total, 108 respondents (21.1%) reported experiencing a high level of burnout (Table 2). An additional 103 (20.1%) experienced burnout a few times a month. The proportion of physicians experiencing burnout once a week or more did not vary by years in practice (38 [22.2%] new physicians v. 70 [20.5%] established physicians). However, using the full 7-category scale, which includes less frequent burnout, burnout did vary by years in practice ($p < 0.001$), with more established physicians reporting no burnout (46 [13.5%] v. 4 [2.3%]) and fewer established physicians reporting burnout a few times a month (54 [15.8%] v. 49 [28.6%]) compared with physicians who were new to practice. Our multivariable regression model confirmed that the odds of experiencing burnout once a week or more does not vary with newness to practice (OR 1.05, 95% CI 0.64–1.73; Table 3). The odds of experiencing frequent burnout were higher for women than men (OR 1.94, 95% CI 1.19–3.15) and for individuals who worked more than 60 hours per week than those who worked less than 30 (OR 6.02, 95%

Table 1: Demographic and practice characteristics of the study sample

Characteristic	Group; no. (%)*		
	Physicians new to practice <i>n</i> = 175	Established physicians <i>n</i> = 350	Total <i>n</i> = 525
Sex, female†	108 (61.7)	183 (52.4)	291 (55.4)
International medical graduates	27 (15.4)	85 (24.3)	112 (21.3)
Any rural practice	46 (26.3)	65 (18.6)	111 (21.1)
Weekly work hours ± SD	46.2 ± 15.0	43.0 ± 15.2	44.1 ± 15.2
Practice model			
Full-time CBPC	27 (15.4)	85 (24.3)	112 (21.3)
Mostly CBPC	42 (24.0)	99 (28.3)	141 (26.9)
Mostly other work	40 (22.9)	62 (17.7)	102 (19.4)
Hospital or facility only	26 (14.9)	71 (20.3)	97 (18.5)
Locum only	40 (22.9)	33 (9.4)	73 (13.9)
Provides call coverage	147 (84.0)	270 (77.1)	417 (79.4)
Weekly work hours			
< 30	12 (6.9)	57 (16.3)	69 (13.1)
30–39	24 (13.7)	61 (17.4)	85 (16.2)
40–49	59 (33.7)	98 (28.0)	157 (29.9)
50–59	42 (24.0)	70 (20.0)	112 (21.3)
≥ 60	38 (21.7)	64 (18.3)	102 (19.4)

Note: CBPC = community-based primary care, SD = standard deviation.
 *Unless specified otherwise.
 †Missing data (*n* = 1).

Table 2: Burnout frequency and priorities for reform				
Reform priorities	Group; no. (%)			p value
	New-to-practice physicians n = 171	Established physicians n = 341	Total n = 513*	
Burnout frequency				
Never	4 (2.3)	46 (13.5)	50 (9.7)	< 0.001
A few times a year	46 (26.9)	117 (34.3)	163 (31.8)	
Once a month	35 (20.4)	54 (15.8)	89 (17.4)	
A few times a month	49 (28.6)	54 (15.8)	103 (20.1)	
Once a week	14 (8.1)	20 (5.9)	34 (6.6)	
A few times a week	18 (10.5)	30 (8.8)	48 (9.4)	
Every day	6 (3.5)	20 (5.9)	26 (5.1)	
High level of burnout†	38 (22.2)	70 (20.5)	108 (21.1)	0.754
Reforms (yes or no)				
Primary care reform is needed	145 (84.7)	254 (74.4)	399 (77.8)	0.009
An alternative payment model would make it easier to provide longitudinal care	117 (68.4)	136 (39.8)	253 (49.3)	< 0.001
I would prefer to be an employee of a clinic (not a small business owner)	100 (58.5)	144 (42.2)	244 (47.5)	0.001
Specific reform priorities†				
Payment structure				
Alternative forms of physician payment	109 (63.7)	136 (39.8)	245 (47.8)	< 0.001
Direct funding for team roles	132 (77.2)	210 (61.6)	342 (66.7)	< 0.001
Direct clinic funding	123 (71.9)	184 (53.9)	307 (59.8)	< 0.001
Work structure				
Option to practise in a team	143 (83.6)	214 (62.7)	357 (69.6)	< 0.001
Time-limited commitment to patient panel	51 (29.8)	69 (20.2)	120 (23.4)	0.015
Transparent evaluation of transformation initiatives	100 (58.5)	211 (61.9)	311 (60.6)	0.482
Option to work part-time	117 (68.4)	215 (63.0)	332 (64.7)	0.214
Job benefits				
Vacation and parental leave	142 (83.1)	274 (80.3)	416 (81.1)	0.425
Loan forgiveness	68 (39.8)	70 (20.5)	138 (26.9)	< 0.001
*Missing data (n = 12) for all questions. †No. (%) of participants who reported a priority as very important.				

CI 2.31–15.68). There was no variation in the burnout by practice model (Wald $p = 0.1$).

Reform priorities

Most respondents (77.8%) stated that primary care reform is needed in BC. Almost half (47.5%) stated that they would prefer to be an employee of a clinic rather than a small business owner. The reforms with the highest levels of support were vacation and parental leave (81.1%), option to work part-time (64.7%), option to practise in a team (69.6%) and direct funding for team roles (66.7%). Physicians who were new to practice had higher odds than established physicians of

stating that all priorities are very important, with the exception of vacation and parental leave, transparent evaluation of transformation initiatives and part-time work (Table 4). They also had higher odds of stating that they felt an alternative remuneration model would make it easier to provide longitudinal care (OR 3.08, 95% CI 2.04–4.64) and that they would prefer to work as an employee of a clinic rather than as a small business owner (OR 1.95, 95% CI 1.30–2.91).

Unadjusted preferences for reform priorities by model of practice are presented in Appendix 2, available at www.cmajopen.ca/content/9/2/E466/suppl/DC1. In adjusted models, individuals working in models of practice that

Table 3: Multivariable analysis of factors associated with burnout

Variable	OR (95% CI)
New graduate (Ref. = established)	1.05 (0.64–1.73)
Model of practice (Ref. = full-time CBPC)	
Mostly CBPC	1.57 (0.83–2.94)
Mostly other work	0.86 (0.39–1.88)
Hospital or facility only	1.15 (0.55–2.42)
Locum	0.54 (0.21–1.39)
Female (Ref. = male)	1.94 (1.19–3.15)
Any rural practice (Ref. = urban)	0.98 (0.55–1.75)
International training (Ref. = Canadian training)	1.12 (0.64–1.96)
Weekly work hours (Ref. ≤ 30)	
30–39	0.74 (0.25–2.22)
40–49	2.03 (0.82–5.06)
50–59	1.78 (0.68–4.67)
≥ 60	6.02 (2.31–15.68)

Note: CBPC = community-based primary care, CI = confidence interval, OR = odds ratio, Ref. = reference category.

combined both CBPC and hospital or facility care, had higher odds of preferring alternative remuneration and direct employment over an entrepreneurial model (Table 4). Model of practice also appeared to be associated with preferences for some specific priorities, with physicians working in combination or hospital-based roles having higher odds of stating that team-based care, direct funding for team roles and time-limited commitments to a patient panel were very important.

Physicians in rural practice had lower odds of agreeing that primary care reform is needed (OR 0.57, 95% CI 0.34–0.93). Although this finding was not statistically significant, rural physicians also showed lower support for alternative payment models and the 3 priorities that focused on changes to work structure. Physicians who trained outside Canada had higher odds of stating that direct funding for team roles (OR 1.68, 95% CI 1.02–2.78) and a time-limited commitment to a patient panel (OR 2.44, 95% CI 1.46–4.07) were very important.

Weekly work hours did not appear to predict reform priority preferences, with the exceptions of loan forgiveness and the option to work part-time. Physicians working the most hours had lower odds of stating that part-time options were very important (e.g., OR for ≥ 60 h per week 0.33, 95% CI 0.15–0.71) and higher odds of stating that loan forgiveness was very important (OR 3.38, 95% CI 1.47–7.78). Finally, compared with men, women tended to report higher support for changes to payment structure; however, this finding didn't achieve statistical significance.

Sensitivity analyses

We conducted sensitivity analyses to evaluate the robustness of our analytic choices. Grouping reform priority responses of “somewhat important” and “very important” to questions about individual reform priorities resulted in only minor changes to the odds ratios we report in Table 4, and no changes in directionality.

Interpretation

Almost 80% of the physicians we surveyed agreed that BC's primary care system is in need of fundamental reform, and 21% met the criteria for a high level of burnout within their current model of practice. We found a high level of agreement among all physicians for most priorities for primary care reform. This level of agreement was higher among physicians who were new to practice for almost all reforms and priorities.

Direct employment, rather than being a small business owner, was preferred by almost half of respondents. Direct clinic funding and benefits (vacation and parental leave), both of which could be included in a direct employment model, also had high levels of support. These findings are consistent with the American literature on the declining rate of small business ownership among physicians, particularly among physicians who are new to practice and among women.²⁷ Previous studies of physicians' overall satisfaction with work life suggest that they are more likely to experience burnout when they spend more time doing work they perceive as being less meaningful, such as administrative and management tasks.²⁸ Furthermore, compared with physician ownership, models of practice in which clinics are owned by hospitals (and physicians are therefore employees) have been associated with lower rates of burnout and more positive perceptions of work environment.²⁹ It follows that models of practice that involve more administrative burden, such as BC's standard physician-owned and -operated fee-for-service practices, may be associated with higher rates of burnout and lower satisfaction.

The proportion of physicians who would prefer to be an employee rather than a small business owner is particularly striking because it is a radical departure from BC's “classic” model of entrepreneurial practice and because it is a model that is not currently supported within the Ministry of Health's suite of reforms.

Interdisciplinary team-based care and direct funding for team roles also had a high degree of support among survey respondents. The Ministry of Health's Integrated System of Primary and Community Care introduces opportunities for team-based care in a patient medical home and primary care network models, and funding is provided to support these expanded roles.^{1–3} This new policy also introduces an alternative payment contract specifically for physicians who are new to practice and who do not wish to be paid under the standard fee-for-service model.³ On the surface, this aligns with our findings that many FPs would prefer an alternative model. However, the contracts cover physician remuneration only, and maintain the physician as business owner model.³¹ To date, there have been no public reports about uptake of this model.

Physicians with rural practices were less likely than those with urban practices to state a desire for reform to primary care. Alternative payment models and direct clinic and team funding have been more available in rural areas as a result of the Joint Standing Committee on Rural Issues, a partnership between Doctors of BC and the provincial government that began to address primary care reform needs for rural BC in 2001.^{32,33} It is possible that the desired reforms have already occurred in those regions.

Limitations

This research was conducted as a cross-sectional survey of physicians working in a large, urban health authority in BC; it is descriptive rather than analytic. The survey was developed to assist VCH with workforce planning rather than for research, and was therefore not formally piloted or tested. Although our survey had a response rate comparable with those of other similar surveys,³⁴ it is important to note that

the perspectives of our respondents may differ from those of physicians who elected not to participate or who were not eligible because they did not have privileges in a VCH facility. Comparison of public data available through the College of Physicians and Surgeons of BC suggests that our sample likely had a higher percentage of women than the broader VCH physician population.³⁵ Compared with men, women had higher odds of stating that direct clinic funding was very important. Thus, assessments about the relative importance of this particular priority to the broader VCH physician population should be made with caution. In addition, physicians working within VCH may structure their practices in ways that are fundamentally different from those working in regional health authorities that encompass more rural and remote areas. Consequently, the priorities for reform among physicians in other regional health authorities may be different from what we report for physicians in VCH. International medical graduates are underrepresented in our sample compared

Table 4 (part 1 of 2): Multivariable analysis of reform priorities

Variable	Primary care reform is needed	An alternative payment model would make it easier for me to provide longitudinal care	I would prefer to be an employee of a clinic (not a small business owner)	Payment structure*		
				Alternative forms of physician payment	Direct funding for team roles	Direct clinic funding
New graduate (Ref. = established)	1.86 (1.14–3.02)	3.08 (2.04–4.64)	1.95 (1.30–2.91)	2.70 (1.78–4.09)	2.23 (1.42–3.50)	2.27 (1.48–3.46)
Female (Ref. = male)	0.86 (0.56–1.31)	1.22 (0.84–1.78)	1.34 (0.92–1.94)	1.34 (0.92–1.97)	1.38 (0.93–2.05)	1.43 (0.98–2.09)
Model of practice (Ref. = full-time CBPC)						
Mostly CBPC	1.40 (0.74–2.64)	1.94 (1.10–3.40)	2.01 (1.14–3.55)	1.75 (0.99–3.08)	1.82 (1.03–3.21)	1.09 (0.63–1.89)
Mostly other work	1.04 (0.52–2.08)	2.68 (1.43–5.02)	2.64 (1.41–4.93)	3.27 (1.71–6.26)	2.53 (1.29–4.96)	1.09 (0.58–2.05)
Hospital or facility only	1.09 (0.55–2.17)	1.33 (0.71–2.48)	2.12 (1.13–3.97)	2.32 (1.24–4.34)	2.14 (1.13–4.06)	1.50 (0.80–2.80)
Locum	1.31 (0.59–2.94)	1.59 (0.79–3.19)	1.47 (0.73–2.96)	1.42 (0.70–2.89)	1.19 (0.58–2.43)	0.66 (0.33–1.33)
Any rural practice (Ref. = urban)	0.57 (0.34–0.93)	0.75 (0.47–1.18)	0.72 (0.46–1.14)	0.67 (0.42–1.08)	0.77 (0.47–1.24)	1.14 (0.71–1.82)
International training (Ref. = Canadian training)	1.09 (0.65–1.83)	0.88 (0.55–1.39)	0.62 (0.39–0.99)	0.98 (0.61–1.57)	1.68 (1.02–2.78)	1.15 (0.72–1.82)
Weekly work hours (Ref. ≤ 30)						
30–39	1.39 (0.67–2.86)	1.47 (0.75–2.89)	0.86 (0.44–1.68)	1.48 (0.74–2.94)	0.98 (0.48–2.01)	1.25 (0.63–2.46)
40–49	1.74 (0.88–3.43)	1.39 (0.75–2.61)	0.75 (0.40–1.39)	1.79 (0.95–3.39)	0.94 (0.49–1.81)	1.55 (0.83–2.89)
50–59	1.58 (0.76–3.25)	1.17 (0.60–2.28)	0.59 (0.31–1.14)	1.20 (0.61–2.36)	1.12 (0.56–2.26)	1.27 (0.65–2.46)
≥ 60	1.31 (0.62–2.78)	1.07 (0.53–2.15)	0.69 (0.34–1.37)	1.06 (0.52–2.17)	1.49 (0.70–3.15)	1.66 (0.82–3.36)

Table 4 (part 2 of 2): Multivariable analysis of reform priorities

Variable	Work structure*			Job benefits*		
	Option to practice in a team	Time-limited commitment to patient panel	Transparent evaluation of transformation initiatives	Option to work part-time	Vacation and parental leave	Loan forgiveness
New graduate (Ref. = established)	3.42 (2.08–5.61)	1.62 (1.03–2.56)	0.85 (0.57–1.27)	1.26 (0.82–1.94)	1.15 (0.69–1.91)	2.48 (1.61–3.82)
Female (Ref. = male)	1.11 (0.74–1.67)	1.20 (0.77–1.87)	1.19 (0.81–1.73)	1.26 (0.85–1.87)	1.37 (0.86–2.19)	1.21 (0.79–1.85)
Model of practice (Ref. = full-time CBPC)						
Mostly CBPC	1.96 (1.09–3.52)	1.28 (0.65–2.51)	1.50 (0.87–2.60)	1.89 (1.08–3.31)	0.98 (0.50–1.93)	1.28 (0.69–2.39)
Mostly other work	2.42 (1.21–4.83)	2.34 (1.13–4.84)	2.27 (1.19–4.31)	1.42 (0.75–2.68)	0.96 (0.45–2.07)	1.53 (0.76–3.08)
Hospital or facility only	2.32 (1.20–4.50)	2.13 (1.03–4.42)	1.29 (0.70–2.38)	1.20 (0.65–2.23)	0.58 (0.29–1.18)	1.50 (0.75–3.01)
Locum	1.25 (0.59–2.64)	2.44 (1.09–5.44)	1.11 (0.56–2.20)	1.83 (0.87–3.83)	1.27 (0.50–3.18)	1.43 (0.66–3.09)
Any rural practice (Ref. = urban)	0.66 (0.40–1.08)	0.69 (0.40–1.19)	0.69 (0.44–1.08)	1.17 (0.72–1.92)	1.23 (0.68–2.25)	0.86 (0.52–1.44)
International training (Ref. = Canadian training)	1.66 (0.99–2.77)	2.44 (1.46–4.07)	0.89 (0.56–1.41)	0.82 (0.51–1.33)	0.95 (0.54–1.68)	1.62 (0.98–2.68)
Weekly work hours (Ref. ≤ 30)						
30–39	0.75 (0.36–1.58)	0.89 (0.39–2.02)	0.91 (0.46–1.82)	1.01 (0.45–2.27)	0.94 (0.38–2.36)	1.50 (0.64–3.47)
40–49	0.94 (0.47–1.88)	1.30 (0.62–2.71)	0.79 (0.42–1.49)	0.62 (0.30–1.28)	0.67 (0.30–1.54)	1.60 (0.73–3.48)
50–59	0.83 (0.40–1.72)	1.07 (0.48–2.39)	1.26 (0.64–2.48)	0.29 (0.14–0.61)	0.73 (0.31–1.74)	1.62 (0.71–3.67)
≥ 60	0.85 (0.39–1.85)	2.22 (0.99–4.99)	1.34 (0.66–2.75)	0.33 (0.15–0.71)	0.56 (0.23–1.37)	3.38 (1.47–7.78)

Note: CBPC = community-based primary care, Ref. = reference category.
 *Odds ratios of reporting each reform priority as very important relative to somewhat important, not important or unsure.

with the population of all physicians in the province, suggesting that the importance of a time-limited commitment to a patient panel and direct clinic funding may be overestimated in our data.

Furthermore, some of the CIs in our analyses are wide, limiting our ability to achieve statistical significance. This reflects both the limited sample size and underlying variability in responses. Nevertheless, the broad support for reforms not necessarily included in current implementation warrants future exploration by health policy makers.

The reform priorities considered by the BC Ministry of Health and included in the VCH survey are found in existing literature, but our list was certainly not exhaustive. It is possible that other structural reform options that were not included may be highly desirable. Additional qualitative work should explore whether there are additional evidence-informed reforms that would encourage more physicians to work in community-based family medicine.

Conclusion

There was general agreement among physicians in our study that BC’s primary care system is in need of fundamental reform; efforts to reform the system are underway. The approach taken by the Ministry of Health addresses some physician priorities (the ability to practise in interdisciplinary teams, in particular), but there are notable gaps. The lack of availability of a model in which physicians are employees rather than business owners is one gap that may continue to push physicians who are new to practice away from longitudinal community-based primary care and into other models or specialties. Because these newer physicians are the primary care workforce of the future, this could exacerbate substantial accessibility challenges for patients. Research that follows physician practice patterns after reform implementation is needed to understand the real effects of the observed gap between physician preference and planned change.

References

1. B.C. government's primary health-care strategy focuses on faster, team-based care [news release]. Vancouver: Government of British Columbia; 2018 May 24. Available: <https://news.gov.bc.ca/releases/2018PREM0034-001010> (accessed 2020 Dec. 18).
2. Primary Care Network: planning and implementation guide. version 1.0. General Practice Services Committee; British Columbia Ministry of Health; Doctors of BC; 2019. Available: www.pcnbc.ca/media/pcn/PCN_Planning_and_Implementation_Guide_v3.7.docx.pdf (accessed 2020 Dec. 18).
3. Primary Care Networks: GP and NP contracts and compensation. Burnaby (BC): Nurses and Nurse Practitioners of British Columbia (NNPBC). Available: www.nnpbc.com/pdfs/portals/np/PCNs-GP-NP-contracts-FAQs-from-MOH.pdf (accessed 2020 Dec. 18).
4. Peckham A, Ho J, Marchildon G. *Policy innovations in primary care across Canada. Rapid Review* no 1. Toronto: North American Observatory on Health Systems and Policies; 2018:1-63. Available: https://ihpme.utoronto.ca/wp-content/uploads/2018/04/NAO-Rapid-Review-1_EN.pdf (accessed 2020 Jan. 13).
5. Hutchison B, Levesque J-F, Strumpf E, et al. Primary health care in Canada: systems in Motion. *Milbank Q* 2011;89:256-88.
6. Soong C, Fan E, Howell EE, et al. Characteristics of hospitalists and hospitalist programs in the United States and Canada. *J Clin Outcomes Manag* 2009;16:69-74.
7. White HL, Stukel TA, Wodchis WP, et al. Defining hospitalist physicians using clinical practice data: a systems-level pilot study of Ontario physicians. *Open Med* 2013;7:e74-84.
8. Wachter RM, Bell D. Renaissance of hospital generalists. *BMJ* 2012;344:e652.
9. Pong R. *Post-M.D. training in family medicine in Canada: continuity and change over a 15-year period*. Ottawa: Canadian Post-M.D. Education Registry (CAPER); 2012.
10. Rabatin J, Williams E, Baier Manwell L, et al. Predictors and outcomes of burnout in primary care physicians. *J Prim Care Community Health* 2016;7:41-3.
11. Puffer JC, Knight HC, O'Neill TR, et al. Prevalence of burnout in board certified family physicians. *J Am Board Fam Med* 2017;30:125-6.
12. Lee FJ, Stewart M, Brown JB. Stress, burnout, and strategies for reducing them: what's the situation among Canadian family physicians? *Can Fam Physician* 2008;54:234-5.
13. Thommasen HV, Lavanchy M, Connelly I, et al. Mental health, job satisfaction, and intention to relocate. Opinions of physicians in rural British Columbia. *Can Fam Physician* 2001;47:737-44.
14. Behmann M, Schmiemann G, Lingner H, et al. Job satisfaction among primary care physicians: results of a survey. *Dtsch Arztebl Int* 2012;109:193-200.
15. Duffy RD, Richard GV. Physician job satisfaction across six major specialties. *J Vocat Behav* 2006;68:548-59.
16. Incitti F, Rourke J, Rourke LL, et al. Rural women family physicians. Are they unique? *Can Fam Physician* 2003;49:320-7.
17. Deshpande SP, DeMello J. An empirical investigation of factors influencing career satisfaction of primary care physicians. *J Am Board Fam Med* 2010;23:762-9.
18. Lavergne MR, Gonzalez A, Ahuja MA, et al. The relationship between gender, parenthood and practice intentions among family medicine residents: cross-sectional analysis of national Canadian survey data. *Hum Resour Health* 2019;17:67.
19. Oandasan IF, Archibald D, Authier L, et al. Future practice of comprehensive care: practice intentions of exiting family medicine residents in Canada. *Can Fam Physician* 2018;64:520-8.
20. Bric V, McGregor MJ, Kaczorowski J, et al. Practice and payment preferences of newly practising family physicians in British Columbia. *Can Fam Physician* 2012;58:e275-81.
21. Hedden L, Barer ML, McGrail K, et al. In British Columbia, the supply of primary care physicians grew, but their rate of clinical activity declined. *Health Aff (Millwood)* 2017;36:1904-11.
22. Eysenbach G. Improving the quality of Web surveys: the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) [published erratum in *J Med Internet Res* 2012;14:e8]. *J Med Internet Res* 2004;6:e34.
23. Community health service areas. Victoria: British Columbia Ministry of Health; 2019. Available: https://catalogue.data.gov.bc.ca/dataset/community-health-service-areas-chsa/resource/f89f99b0-ca68-41e2-afc4-63fdc0edb666?inner_span=True (accessed 2020 Aug. 17).
24. West CP, Dyrbye LN, Satele DV, et al. Concurrent validity of single-item measures of emotional exhaustion and depersonalization in burnout assessment. *J Gen Intern Med* 2012;27:1445-52.
25. Dolan ED, Mohr D, Lempa M, et al. Using a single item to measure burnout in primary care staff: a psychometric evaluation. *J Gen Intern Med* 2015;30:582-7.
26. Canadian Institutes of Health Research; Natural Sciences and Engineering Research Council of Canada; Social Sciences and Humanities Research Council. *Tri-Council Policy Statement: ethical conduct for research involving humans — TCPS 2 2018*. Ottawa: Secretariat on Responsible Conduct of Research 2019. Available: https://ethics.gc.ca/eng/policy-politique_tcps2-eptc2_2018.html (accessed 2020 Aug. 24).
27. Kane CK. *Updated data on physician practice arrangements: for the first time, fewer physicians are owners than employees [policy research perspectives]*. Chicago: American Medical Association; 2019:1-16. Available: www.ama-assn.org/system/files/2019-07/prp-fewer-owners-benchmark-survey-2018.pdf (accessed 2020 Nov. 25).
28. Shanafelt TD, West CP, Sloan JA, et al. Career fit and burnout among academic faculty. *Arch Intern Med* 2009;169:990-5.
29. Cuellar A, Krist AH, Nichols LM, et al. Effect of practice ownership on work environment, learning culture, psychological safety, and burnout. *Ann Fam Med* 2018;16(Suppl 1):S44-51.
30. Backgrounder: contracting 200 GPs into primary care networks. Divisions of Family Practice; 2018. Available: https://divisionsbc.ca/sites/default/files/inline-files/GP%20Backgrounder%20and%20FAQ%20-%20Final%20181023_0.pdf (accessed 2020 Aug. 24).
31. Physician compensation and recruitment. Victoria: British Columbia Ministry of Health, Victoria. Available: www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/physician-compensation (accessed 2020 Dec. 18).
32. Rural practice subsidiary agreement. Victoria: British Columbia Ministry of Health. Available: www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/physician-compensation/rural-practice-programs/rural-practice-subsidiary-agreement (accessed 2020 Aug. 24).
33. Joint Standing Committee on rural issues: terms of reference. Victoria: British Columbia Ministry of Health; 2012. Available: www2.gov.bc.ca/assets/gov/health/practitioner-pro/jsc_tor.pdf (accessed 2020 Aug. 24).
34. College of Family Physicians of Canada; Canadian Medical Association; Royal College of Physicians and Surgeons of Canada. 2014 response rate. Mississauga: National Physician Survey; 2014. Available: <http://nationalphysiciansurvey.ca/surveys/2014-survey/response-rates/> (accessed 2020 Jan. 30).
35. Hedden L, Banihosseini S, Strydom N, et al. Modern work patterns of "classic" versus millennial family doctors and their effect on workforce planning for community-based primary care: a cross-sectional survey. *Hum Resour Health* 2020;18:67.

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