Will the Real Physician Retirees Please Stand Up?

Que le vrai médecin retraité se lève !

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Abstract

Policy makers and health workforce planners rely on counts of practice licences as a measure of the size of the active physician workforce. We use a population-based approach to correlate estimates of retirement from clinical care based on these data with those produced using physician payment data. We find that licensure data generates per-capita estimates of physician supply in British Columbia that are substantially higher than activity-based estimates. Licensure data are unlikely to produce reliable estimates of the timing and extent of physician retirement and therefore should not be used as the primary basis for estimating current or future physician supply.

Résumé

Les responsables de politiques et les planificateurs de la main-d'œuvre en santé comptent sur les permis d'exercice pour mesurer l'effectif de la main-d'œuvre chez les médecins. Nous avons employé une démarche axée sur la population afin de calculer la corrélation entre l'estimation des retraites dans les soins cliniques en fonction de ces données et de l'estimation effectuée au moyen des données sur la rémunération des médecins. Nous avons observé que les données concernant les permis donnent lieu, en Colombie-Britannique, à des estimations du nombre de médecins par personne substantiellement plus élevées que celles qui se fondent sur l'activité. Les données concernant les permis ne permettent probablement pas d'effectuer des estimations fiables quant au moment de la retraite et à son étendue. Ces données ne devraient donc pas être employées comme source première pour estimer le nombre de médecins actuel ou à venir.

Introduction

Estimates of current and future physician supply depend in part on accurate information on retirements. This is particularly important given that a sizable cohort of physicians is rapidly approaching normal retirement age (Hedden et al. 2017; Pong et al. 2007). Underestimating numbers or rates of retirement could lead to or exacerbate service shortages, while overestimating them could lead to the reverse. Retirement data are also deployed in policy considerations regarding training capacity and therefore under- or overestimating retirements could affect the number of funded medical school positions and the number of new physicians entering practice.

Three sources of data can provide information on physician retirement patterns: retirement intention surveys; licensure information maintained by regulatory bodies; and payment (billings) data. Retirement intention surveys are limited by the usual concerns about self-report data and have been shown to have limited predictive accuracy (Pong 2011; Rittenhouse et al. 2004; Steel and Ovalle 1984; Tett and Meyer 1993). Policy makers and workforce planners typically rely heavily on data from physician licensing bodies to determine when a physician has ceased clinical practice. These data may underestimate retirements if physicians either choose to maintain active licenses beyond the time when they stop delivering care, or if they keep their licenses while substantially reducing their clinical activity prior to full retirement.

In this exploratory analysis, we sought to examine the concordance between retirement from clinical practice defined using licensure data and retirement defined using payment (activity) data based on a variety of "intensity" thresholds. We comment on the strengths and limitations of these approaches in identifying retired or retiring physicians.

Materials and Methods

Data Sources and Study Cohort

Physicians must have a license to practice medicine, which in Canada is granted through provincial and territorial regulatory authorities. The College of Physicians and Surgeons of British Columbia (CPSBC) licenses and maintains a register of physicians for BC. We used this registry to define a complete cohort of physicians for the years 2005/6–2011/12, and as our source of licensure information (CPSBC 2013).

To quantify levels of clinical activity, we used physician payment data for the same period (April 1, 2005 to March 31, 2012) from BC's Medical Services Plan (MSP) payment files (British Columbia Ministry of Health 2013b). These data capture all fee-for-service payments to all physicians who were practicing in BC during the period. We supplemented them with non-fee-for-service payment data from the Ministry of Health's Alternative Payment Program (APP) database, which is a record of all salaries, service contracts, sessional fees and other payments to physicians outside of the fee-for-service remuneration system (British Columbia Ministry of Health 2015a). Together these data encompass all clinical care payments to physicians within BC's publicly financed healthcare system. Care provided outside of the publicly financed system remains rare.

Our study cohort includes all physicians who were age 50+, had an active BC practice license at the beginning of the 2005/6 fiscal year, and who received any payment for clinical practice during at least one year of the study period.

Identifying Retirement from Clinical Practice

LICENSURE DATA

The CPSBC maintains a record of physicians' practice licenses; however, it does not currently maintain a separate licensure status that indicates retirement. Rather, retiring physicians cancel their provincial registration when they wish to cease practice. Prior to June 2009, physicians had the option of moving from full license to a "Retired Life" licensure category. This classification allowed them to maintain the ability to prescribe medicines (while no longer delivering clinical care) for up to three years following their retirement (CPSBC 2018). We identified retirement from clinical practice either as the date of cancellation of provincial registration, or the date of a move from an active license to the Retired Life category during the study period. We distinguished between retirement events that were temporary – i.e., cases where provincial registration was reinstated following any unlicensed or retired period – from those that were permanent.

ACTIVITY DATA

We selected three monthly threshold values ($0, $833 and $1,667), corresponding to total annual payments of $0, $10,000 (4% of average annual payments) and $20,000 (8% of average annual payments), to identify possible retirement events in the payments database. We selected these thresholds as they were used in another study of retirement patterns that used the same data sources (Hedden et al. 2017), and were shown to be robust, reflecting allowances for minimal clinical activity. In all three cases, a physician would be flagged as having retired from clinical practice if they fell below the threshold in a given month. We defined temporary retirements as periods of at least a single month of falling below a threshold, followed by return to months of higher billing. Permanent retirements were counted as occurring at the first month of falling below the $ threshold, with no subsequent month rising above that threshold. A physician may have no retirement, one or more temporary retirements, and/or one permanent retirement.

Analysis

For each retirement definition, we examined the number and timing of temporary and permanent retirement events observed over the study period overall, and by gender and specialty grouping. We produced correlations across all measures to examine the concordance of the licensure-based and activity-based definitions of retirement. We also examined the mean and distribution of age at the time of retirement according to each definition.
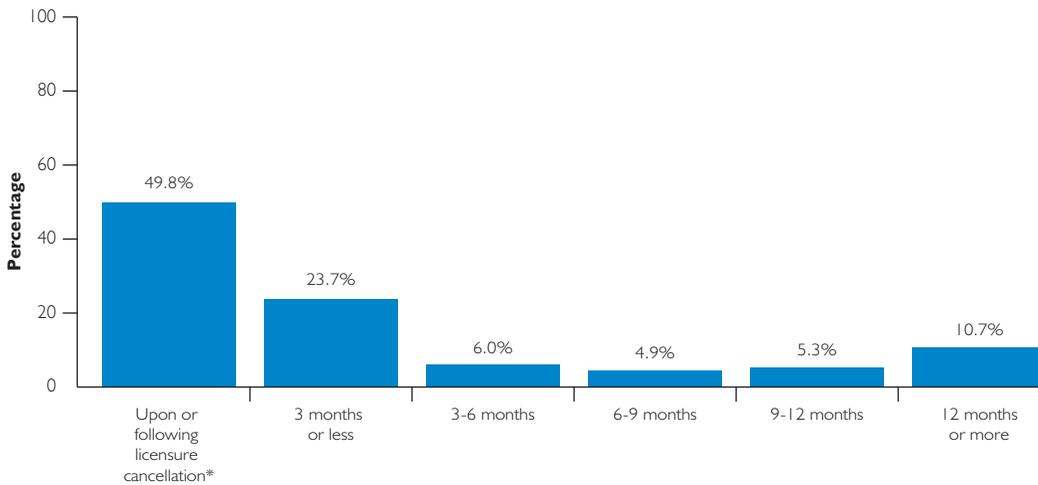
Results

A total of 4,503 physicians met our inclusion criteria. There was substantial variability in the number of retirement events across the four definitions and between the two data sources (Table 1). Twelve hundred and fifty-four (27.8%), 1,413 (31.4%) and 1,549 (34.4%) physicians permanently retired according to the $0, $833 and $1,667 monthly billing thresholds, respectively. Over the same period, only 832 (18.5%) permanently retired according to the licensure-based definition. Four hundred and fifty-nine (10.2%), 660 (14.7%) and 747 (16.6%) fell below the three billing thresholds but subsequently returned to active practice, and 100 (2.2%) cancelled their licenses but subsequently reinstated them. The size of the differences between the retirement definitions was generally consistent for male and female physicians and across specialty groupings (Supplements 1 and 2 available online at www.longwoods.com/content.25688); however, temporary retirement was less common among lab and imaging, and medical specialists compared with general practitioners or surgical specialists. "Overall, the average age of permanent retirement within the licensure data was more than a full-year later than that implied using least restrictive billing threshold definition (66.9 compared to 65.5, respectively)."

TABLE 1. Retirement events

Retirement definition (data source)	Permanent retirement events (% of cohort)	Returned to active practice after temporary retirement (%)	Total retirement events (%)	Average age at retirement (SD)
Licensure-based (CPSBC registry)	832 (18.5)	100 (2.2)	932 (20.7)	66.9 (8.0)
$0 billings (MSP/APP)	1,254 (27.8)	459 (10.2)	1,713 (38.0)	66.2 (7.9)
$833/monthly billings (MSP/APP)	1,413 (31.4)	660 (14.7)	2,073 (46.0)	65.8 (7.8)
$1,667/monthly billings (MSP/APP)	1,549 (34.4)	747 (16.6)	2,296 (51.0)	65.5 (7.7)

Irrespective of eventual licensure cancellation, 970 (21.5%) and 727 (16.1%) physicians held an active practice license with no billing activity for six- and 12-months, respectively. Among those who retired permanently according to both the lowest billing threshold ($0) and the CPSBC licensure data, there is an average of 3.5 months (median: 0 months) between the cessation of billing and subsequent cancellation of license (Figure 1). Furthermore, while the payment data showed that resumption of clinical activity after an inactive period was common, reinstatement of a provincial license following an unlicensed period was less frequent.

FIGURE 1. Months between cessation of billing activity and cancellation of provincial license to practice

*Billings appearing after cancellation of licensure are likely a result of retroactive payments reflecting fee increases that are applied to previous fiscal years

Correlation Between Retirement Definitions

Correlations between the permanent payment threshold-based retirements and those based on the CPSBC licensure status ranged from 0.64 to 0.74 (Table 2). The correlation was lower if temporary and permanent retirements were considered together, ranging from 0.48–0.61 between licensure- and payment-based definitions. The lower correlations reflect many more physicians moving back and forth between active and retired according to the payment compared to licensure data.

TABLE 2. Correlation between definitions of retirement[1]

	Licensure-based (CPSBC registry)	$0 billings (MSP/APP)	$833/monthly billings (MSP/APP)	$1,667/monthly billings (MSP/APP)
Correlation for *permanent* retirement events				
Licensure-based (CPSBC registry)	I	0.7433	0.6867	0.6442
$0 billings (MSP/APP)		I	0.9187	0.8579
$833/monthly billings (MSP/APP)			I	0.9338
$1,667/monthly billings (MSP/APP)				I
Correlation for *any* retirement events[2]				
Licensure-based (CPSBC registry)	I	0.6113	0.5245	0.4844
$0 billings (MSP/APP)		I	0.8484	0.7682
$833/monthly billings (MSP/APP)			I	0.9055
$1,667/monthly billings (MSP/APP)				I

[1]. We computed kappa scores as an alternative measure of correlation and they were consistent with the r^2 values reported here

[2]. Includes individuals who retired (dropped below billing thresholds or turned in their practice licenses) but subsequently returned to active practice

Discussion

Accurately identifying when physicians retire from clinical practice is critical to the measurement of current, and prediction of future, physician supply. Existing evidence using payment data to examine patterns of retirement among physicians suggest that more than 40% of physicians reduce their clinical activity levels by 10% or more in the three years preceding retirement, and while there is no difference in age of retirement by specialty group, women and physicians working in rural areas tend to retire earlier (Hedden et al. 2017). In this study, we found that the measurement of the extent and timing of retirement is also critically dependent both on data source and the definition of retirement used. Retirement events are less common and more likely to be permanent when measured using licensure data than payment data.

The lack of agreement between these data sources is driven by the number of physicians who ceased or severely limited their clinical activity, while still maintaining an active license for an extended period. One reason for this disparity is that physicians may limit or cease delivering clinical care and therefore submit little or no clinical billings, but may choose to maintain an active license for the purposes of teaching or research. We identified nearly twice as many physician retirements using the $20,000 annual billing threshold compared to the licensure data. Furthermore, we identified 727 physicians who received no clinical service payments for at least one year, while still holding an active license. Based on the physician counts provided by the Canadian Institute for Health Information, this corresponds to a 7.1% overestimate of the size of the active workforce in BC (CIHI 2012).

In order to retain a license and to maintain "currency" in clinical practice, the CPSBC asks that physicians self-report (on an annual basis) that they have practiced for 24 weeks (960 hours) within the preceding three years (CPSBC 2010). Thus, physicians could cease clinical care for more than two years and still be in compliance with College licensing regulations. Furthermore, physician self-reports are not checked by the College against payment data to ensure accuracy of recall. This policy could introduce a substantial overestimate in the size of the active physician cohort if licensure data (whose primary purpose is just that) are used as a primary source for health human resources planning.

The provincial Ministry of Health – charged with setting medical school enrollment and residency slot caps – should base estimates of physician retirement on clinical care delivery data generated through their own payment systems.

Conclusion

We found lower correlations between payment- and licensure-based measures of retirement than between different payment-based measures, chiefly due to a substantial number of physicians maintaining an active license while providing limited or no patient care. Most physicians maintain a period of limited billing before cancelling their licenses. Licensure data appear unlikely to produce reliable estimates of physician retirement and should not be used as the sole (or primary) measure of current physician supply, or as a robust source of data for forecasting future physician supply. The use of these data to generate per-capita estimates of physician supply is likely to generate overestimates of the size of the active physician workforce.

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