



Centre for
HEALTH SERVICES AND POLICY RESEARCH

Who are the

Primary Health Care Physicians in British Columbia?

1996/97-2004/05

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About CHSPR

The Centre for Health Services and Policy Research (CHSPR) is an independent research centre based at the University of British Columbia. CHSPR's mission is to stimulate scientific enquiry into issues of health in population groups, and ways in which health services can best be organized, funded and delivered. Our researchers carry out a diverse program of applied health services and population health research under this agenda.

CHSPR aims to contribute to the improvement of population health by ensuring our research is relevant to contemporary health policy concerns and by working closely with decision makers to actively translate research findings into policy options. Our researchers are active participants in many policy-making forums and provide advice and assistance to both government and non-government organizations in British Columbia (BC), Canada and abroad.

CHSPR receives core funding from the BC Ministry of Health Services to support research with a direct role in informing policy decision-making and evaluating health care reform, and to enable the ongoing development of the BC Linked Health Database. Our researchers are also funded by competitive external grants from provincial, national and international funding agencies.

Much of CHSPR's research is made possible through the BC Linked Health Database, a valuable resource of data relating to the encounters of BC residents with various health care and other systems in the province. These data are used in an anonymized form for applied health services and population health research deemed to be in the public interest.

CHSPR has developed strict policies and procedures to protect the confidentiality and security of these data holdings and fully complies with all legislative acts governing the protection and use of sensitive information. CHSPR has over 30 years of experience in handling data from the BC Ministry of Health and other professional bodies, and acts as the access point for researchers wishing to use these data for research in the public interest.

For more information about CHSPR, please visit www.chspr.ubc.ca.



Acknowledgements

This project relied extensively on work underway at the Centre for Health Services and Policy Research to use the British Columbia (BC) Linked Health Database to identify physicians who engage in clinical practice. This task has become increasingly challenging given the array of funding sources and corresponding administrative data files that have emerged over recent years. The methodological advancements used to conduct this project also relied on previous work by others in the province, and new contributions by the authors. Colleagues who provided feedback on draft copies of this report are also acknowledged.

The BC Ministry of Health provided funding, under the Primary Health Care Transition Fund, to support this project. The results and conclusions are those of the authors and no official endorsement by the Ministry is intended or should be inferred. All analysis and interpretation, and any errors, are the sole responsibility of the authors. This project is part of a larger program of research conducted at the request of the BC Ministry of Health.

The Behavioural Research Ethics Board of the University of British Columbia approved the program, and the College of Physicians and Surgeons of British Columbia approved the use of their data to ensure the accuracy of counts and determinations regarding geographic location of physicians.

Executive Summary

Most individuals' first point of contact with the health care system is typically through a physician who delivers comprehensive care over time. General practitioners-family physicians (hereinafter called general practitioners) most often fulfill this role for Canadians. It has become increasingly evident, however, that general practitioners may elect to narrow their activities to certain specialized services, or deliver care exclusively in institutional settings such as emergency departments. Conversely, while most specialists provide episodic and specialized services almost exclusively, some may offer services that are first contact, comprehensive and continuous, and may be the main coordinator of a patient's total care. Should any or all of these physicians be described as providing primary health care (PHC)?

Since PHC is defined by service attributes rather than by professional discipline or location of care, the challenge is to identify physicians who deliver these services. This paper describes the population of PHC, PHC-related and specialist physicians in British Columbia, assesses temporal patterns of their supply, and describes their demographic characteristics and geographic distribution. We analyzed data from fiscal years that predate the Health Transition Fund and Primary Health Care Transition Fund, and from the most recent period for which complete data were available (2004/05).

There were 8,558 physicians engaged in part- or full-time clinical practice across British Columbia in 2004/05 (204 physicians per 100,000 or 490 people per physician). Among this provincial workforce, 51 per cent were PHC physicians (105 per 100,000 or 952 people per PHC physician). The proportion of PHC physicians to total physician supply declined from 55 per cent in 1996/97 to 51 per cent in 2004/05, a trend which is especially important to monitor. Emerging research suggests that higher ratios of PHC physicians to population, and higher ratios of PHC physicians to specialists, improve health outcomes for populations, at a low cost.

Of particular note is the speed with which health authorities gained or lost PHC physicians over the eight-year period. The largest reduction in per capita supply between 1996/97 and 2004/05 occurred in Vancouver Coastal (14% relative

decline), but this health authority retained the province's highest PHC physician-to-population ratio (130 per 100,000). The second largest reduction occurred in Fraser (2% relative decline), and this health authority had the lowest level of supply in 2004/05 (77 per 100,000 population). In contrast, per capita supply increased 13 per cent in Vancouver Island, a health authority that enjoyed the second highest PHC physician-to-population ratio in 2004/05 (128 per 100,000). Temporal shifts in the number of PHC physicians in clinical practice are attributable to a number of factors—immigration, emigration, entrants and exits, as well as physicians who change specialty designations and practice patterns over time. Variability in PHC physician supply was also dramatic across health service delivery areas, with Vancouver at 153 per 100,000 and Fraser South at 72 per 100,000 in 2004/05.

But it is important to juxtapose measures of supply with geographic differences in relative need for health care. There was no association between PHC physician supply and British Columbia's need for health care in 2004/05. Areas with lower levels of health status did not have more PHC physicians, and areas with higher levels of health status did not have fewer PHC physicians. Our team has previously documented disparities in the geographic distribution of PHC physicians, but at that time we also documented equity in the utilization of PHC services. In combination, these results suggest that people move across jurisdictional boundaries to obtain PHC services. Interestingly, when our team combined counts of PHC-related registered nurses and PHC physicians, the extent of variability in supply among this workforce of nurses or physicians is attenuated. Where there are fewer PHC physicians in British Columbia, there are more PHC-related registered nurses, and visa versa.

These analyses identify and describe the province's PHC physicians, and illustrate temporal shifts in their supply. However, current policy and planning activities require more information than head counts and demographic trends. Future reports by our research team are intended to offer greater insight into other important characteristics of PHC physicians, as well as British Columbians' use of their services.



Introduction

The primary health care (PHC) sector is where patients and health care providers meet to resolve short-term health issues and manage chronic health conditions. It is also where disease prevention and health promotion activities are undertaken, and where patients in need of more specialized services are connected with secondary care. The unique and distinguishing features of this sector are that its providers deliver first contact care, and services that are responsive, comprehensive, continuous and coordinated.^{1,2}

Most individuals' first point of contact with the health care system is typically through a physician who delivers comprehensive care over time. General practitioners most often fulfill this role for Canadians. It has become increasingly evident, however, that general practitioners may elect to narrow their activities to certain specialized services or deliver care exclusively in institutional settings such as emergency departments. For example, it been estimated that 15 per cent to 20 per cent of general practitioners in Manitoba do not offer comprehensive or continuous care but work almost exclusively in areas such as eye care, sports injuries or minor surgery.³

Conversely, specialists such as pediatricians, geriatricians and general internists may offer services that are first contact, comprehensive and continuous, and these physicians may be the primary coordinator of a patient's total care. Yet, most specialists provide episodic and specialized services almost exclusively. There are also physicians who work in emergency rooms and offer first contact care, but whose care is not intended to be continuous nor comprehensive. Should any or all of these physicians be described as providing PHC?

Since PHC is defined by service attributes rather than by professional discipline or location of care, the challenge is to identify physicians who deliver these services. Only then is it possible to describe the patterns of practice among these medical practitioners, the population's use of their services, and temporal shifts in the receipt or delivery of PHC.

This paper describes the population of PHC, PHC-related and specialist physicians in British Columbia deemed to be in active clinical practice, assesses temporal patterns of supply of this workforce, and describes the demographic characteristics and geographic dispersion of physicians in three time periods. At the request of the BC Ministry of Health, we analyzed data from fiscal years that predate the Health Transition Fund (1996/97) and Primary Health Care Transition Fund (2000/01), and from the most recent period for which complete data were available (2004/05).

This report relies on new methodologies developed to generate more precise estimates of the number of physicians engaged in clinical practice and most likely to deliver PHC in British Columbia. We rely, and build, upon previous methodological innovations in the province, particularly work by the BC Ministry of Health to describe physicians according to their type of practice.

Methods

Analyses relied on anonymized, provincial administrative data housed in the BC Linked Health Database at the University of British Columbia, supplemented with data from the College of Physicians and Surgeons of British Columbia (CPSBC). Physicians were deemed to be in active clinical practice in each fiscal period if they could be identified in the CPSBC database and one or more of the following billing or encounter files: Medical Services Plan (MSP)* billing files, Alternative Payments Program (APP) files documenting claims for individual physicians (e.g. salary, sessional, on call payments),[‡] Primary Health Care Organizations encounter files, and the Hospital Discharge Abstracts Database.⁴

Importantly, we excluded physicians appearing in the CPSBC file with full registered status and having a British Columbia address, but not appearing in the above-mentioned service files (n=471 in 2004/05). Of this group, 45 per cent were registered as general practitioners and likely engaged in non-clinical work (e.g. administration, education, research) or delivered clinical care through service agreements funded by APP or solely funded by a health authority. Service agreements under APP fund group practices and other organizations, and it is not possible to identify physicians remunerated solely through these entities.

We used two existing variables, each developed by the BC Ministry of Health and the CPSBC, to classify physicians. A three-step process was undertaken to categorize physicians relative to their delivery of PHC by combining data about their registered specialty with information regarding their type of practice. First, each physician was assigned to one of three mutually exclusive groups using information regarding their most recent registered specialty (MRRS). The MRRS designation is assigned by the CPSBC to reflect each practitioner's self-reported specialty, and is available in the MSP Practitioner File. The three mutually exclusive groups were: (1) general practitioners; (2) PHC-related specialties such as obstetrics and gynecology, pediatrics, geriatric medicine, general internal medicine and emergency medicine; and (3) other specialties such as dermatology, neurology and pathology.

Second, each physician was assigned to one of three mutually exclusive groups using information regarding their type of practice. The type of practice designation represents a physician's functional specialty. It is a variable developed and computed by the Ministry of Health, and is derived from the analyses of billing practices. One of the unique features of the fee-for-service schedule in British Columbia is that billable fee items, with a small number of exceptions, are assigned to a specialty group. By classifying each fee item that a practitioner has billed, their type of practice is determined by identifying the specialty group under which most of the fee items are billed.⁵ This variable is computed annually and is available in the MSP Practitioner File. Over time, some practice codes have been added or become obsolete.

The three mutually exclusive type of practice groups were: (1) PHC physicians, which includes medical practitioners with a type of practice designation such as general practice and Primary Health Care Organization physician; (2) PHC-related physicians, which includes medical practitioners with a type of practice designation such as pediatrics, geriatric medicine, general internal medicine, emergency medicine; and (3) other specialists, which includes medical practitioners with a type of practice designation such as dermatology, neurology or pathology.

* The Medical Services Plan is the funding mechanism used in British Columbia to insure medically necessary services provided by physicians and supplementary health care practitioners, laboratory services, and diagnostic procedures. Under the Plan's billing system, the government pays providers on a fee-for-service basis.

‡ The Alternative Payments Program includes two types of claims: remuneration to individual physicians (e.g. claims for salary, sessional, on call, call back 3 hour minimum, call back) and payments made to service organizations. In 2004/05 payments made through the Rural Retention Program and Medical On-Call Availability Program were not included in the Program's database.



Physicians registered as general practitioners may be classified in the PHC-related or specialist type of practice categories in instances where their billing patterns suggest they are functioning in a more focused or specialized area of practice. Appendix 5 summarizes the classification system used in these two steps.

The third step of classification involved a cross tabulation of MRRS and type of practice in order to cluster physicians into nine discrete groups. Once categorized in this manner, physicians who hold different specialty designations can be described in ways relevant to understanding their contribution to PHC and related services. Our assumption is physicians who have a PHC type of practice, irrespective of their specialty designation, represent the bulk of the physician workforce in this sector.

This report focuses on the workforce of physicians deemed to have a PHC type of practice. This population can include general practitioners and other specialists. Since many health system policy-makers, managers and planners are also interested in the workforce of general practitioners, we briefly describe the degree to which physicians with this designation have a PHC, PHC-related or specialist type of practice.

In order to better understand features of the workforce and geographic dispersion of physicians, we describe the demographic characteristics of PHC physicians and calculate crude ratios per 100,000 population. Denominators were derived from BC Stats PEOPLE 28 and PEOPLE 30 estimates. Information is provided at the provincial, regional health authority and health service delivery area level. Physicians were assigned to jurisdictions on the basis of addresses selected from the CPSBC and the MSP Practitioner File using methods described elsewhere.⁶ We offer sensitivity analyses regarding assignment of physicians to health regions, since these data sources offer an array of potential office addresses.

Physician-to-population ratios were not adjusted to account for differences in the age, gender or case-mix structure of regional populations. We did, however, analyze the distribution of physicians relative to population health status. A key aspect of planning for PHC renewal is determining how well the current system responds to the health service needs of the populations it serves. Therefore, we measured the association between physician-to-population ratios and the health service needs of the populations who reside in the same jurisdiction. We used premature mortality rate as the primary measure of relative need for health care, since it is generally recognized as the best indicator of population health status⁷ and has a high level of association with other measures of morbidity.⁸

We measured local supply of PHC physicians and premature mortality rate at concurrent points of time and used the Pearson correlation coefficient to assess the degree of association. This report uses premature mortality rate as an ordering framework (from high need to low need) for relevant graphics in the appendices. The level and geographic distribution of premature mortality rate in British Columbia, and its association with other measures of health care use, are described in previous Centre for Health Services and Policy Research publications, the British Columbia Health Atlas (2nd edition) and Planning for Renewal: Mapping PHC in British Columbia.

Findings

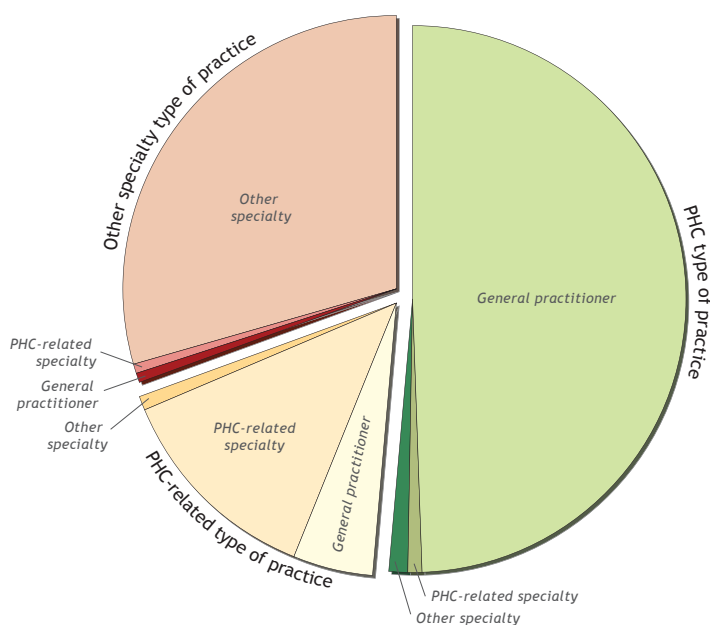
Provincial Level

In 2004/05 there were 8,558 physicians in clinical practice in British Columbia, which equates to approximately 204 physicians per 100,000 population or 490 people per physician. Table 1 and Figure 1 categorize these physicians by MRRS and type of practice. Appendix 1 shows a similar graphic for each health authority in 2004/05.

Table 1: Physicians in Clinical Practice by Type of Practice (TOP) and Most Recent Registered Specialty (MRRS), 2004/05

Type of practice	GP	PHC-related specialty	Other specialty	Total
PHC Physician	4,233	87	85	4,405
PHC-related Physician	412	1,061	81	1,554
Other specialist	52	49	2,498	2,599
Total	4,697	1,197	2,664	8,558

Figure 1: Physicians in Clinical Practice by Type of Practice (TOP) and Most Recent Registered Specialty (MRRS), 2004/05



Types of Physicians

In 2004/05 there were 4,405 PHC physicians in British Columbia, which equates to approximately 105 physicians per 100,000 population, or 953 people per physician. They accounted for the largest portion (51%) of the clinical physician workforce in the province (Figure 1). They represented a very large proportion of the clinical physician workforce in Northern Health Authority (67%) and smaller proportions in Interior (58%), Fraser (54%), Vancouver Island (54%) and Vancouver Coastal (43%) (Appendix 1). Crude ratios of PHC physicians to population ranged from 130 per 100,000 in Vancouver Coastal Health Authority to 77 per 100,000 in Fraser Health Authority. PHC physician supply also varied within each health authority. Vancouver Coastal had the largest variability across its health service delivery areas, with 153 PHC physicians per 100,000 in Vancouver and 80 per 100,000 in Richmond. Fraser Health Authority had the lowest variation across its health services delivery areas, with Fraser North and Fraser South at 81 and 72 PHC physicians per 100,000, respectively. Appendices 3 and 4 illustrate variability in PHC physician supply across health authorities and health service delivery areas. Of the workforce of practitioners deemed to be PHC physicians in 2004/05:

- 96 per cent were registered as general practitioners (n=4,233);
- two per cent had a specialty designation related to PHC (n=87) including pediatrics, obstetrics/gynecology, geriatrics, general internal medicine or emergency medicine. Not all physicians with these registered specialties were

Source for Table 1 and Figure 1: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.

PHC-related specialty includes the following MRRS codes: ObGyn, pediatrics, internal medicine, geriatric medicine, and emergency medicine. PHC physician includes the following TOP specialties: GP, GP (miscellaneous), GP alternative payments at 50%+, PHCO physician, salaried or contract. PHC-related physician includes the following TOP specialties: ObGyn, pediatrics, internal medicine, geriatric medicine, emergency medicine, GP-anesthesia 35%+, methadone program, GP surgical assistant 35%+, GP ObGyn 35%+, and gerontology GP 45%+.



deemed to be PHC physicians, only those with a general type of practice. Table 1 classifies these physicians according to whether their work was deemed to be PHC, related to PHC or specialized;

- and two per cent had another specialty designation (n=85).

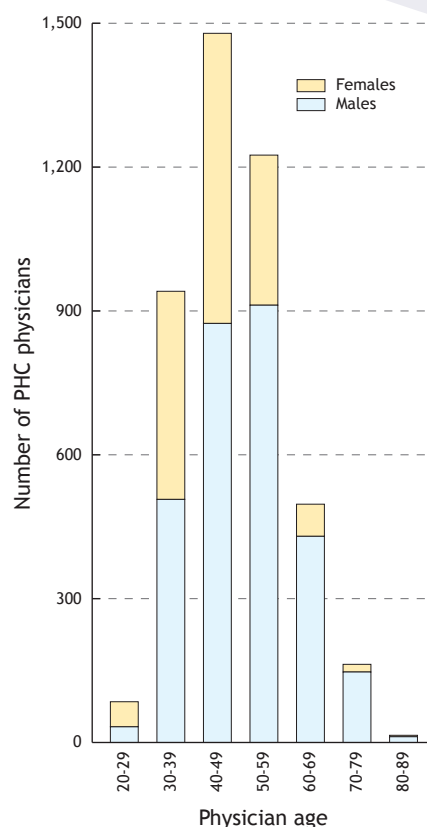
The vast majority (90%) of physicians with a general practitioner designation were deemed to be PHC physicians (n=4,233). Nine per cent had a type of practice related to PHC (n=412) and one per cent had a type of practice associated with other specialists (n=52). Of the workforce of physicians with a specialty designation deemed to be PHC-related, seven per cent had a PHC type of practice (n=87). Of the physicians with other specialty designations, three per cent had a PHC type of practice (n=85).

Appendices 1, 3 and 4 illustrate the proportion of physicians (and PHC physicians in particular) by specialty designation at the provincial and health authority levels.

Demographic Structure

Among the workforce of PHC physicians in 2004/05, 66 per cent were male and 34 per cent were female. In terms of age structure, two per cent were between 20 and 29 years old, 21 per cent were between 30 and 39 years old, 34 per cent were between 40 and 49 years old, 28 per cent were between 50 and 59 years old, 11 per cent were between 60 and 69 years old, and four per cent were over 70 years old. Younger age categories contained higher proportions of female physicians—in the 20 to 29 year age cohort, females made up 61 per cent of the PHC physician workforce. Among the 30 to 39, 40 to 49, 50 to 59 and 60 to 69 year age groups, females made up 46 per cent, 41 per cent, 26 per cent and 13 per cent of PHC physicians, respectively. Appendices 2 and 4 illustrate the demographic structure of the PHC physician workforce by health authority.

Figure 2: PHC Physicians in British Columbia by Age and Sex, 2004/05



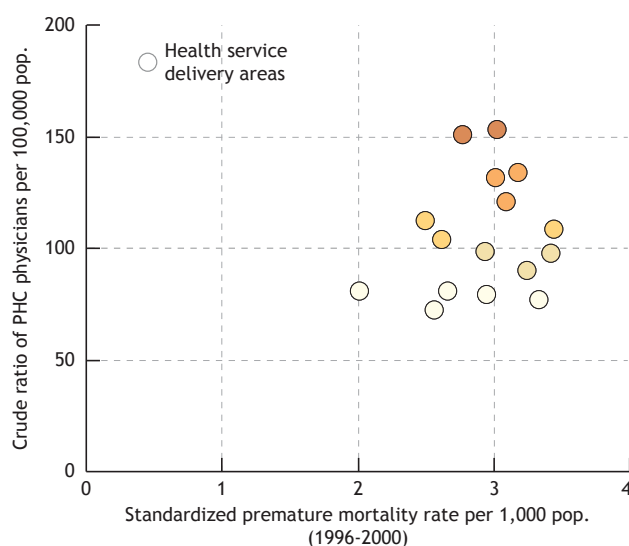
Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.

Distribution Relative to Population Health Status

If PHC physicians were equitably distributed across the province, we would expect areas with low population health status (high premature mortality rate) to have a higher level of physician supply to meet their additional needs. Conversely, areas with high population health status (low premature mortality rate) would have lower levels of physician supply. This would be displayed as a strong, positive association between physician-to-population ratios and premature mortality rate.

In 2004/05, there was no association (Pearson coefficient = 0.22, $p = 0.47$) between the supply of PHC physicians and premature mortality rate across the province (Figure 3). There seems to be no clear link between the geographic dispersion of PHC physicians and the health care needs of populations who reside in their jurisdiction.

Figure 3: Crude Ratio of PHC Physicians to 100,000 Population Relative to Premature Mortality Rate, 2004/05



Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee-for-service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats. PMR: BC Vital Statistics Agency; Hospital separations data, BC Ministry of Health.

Trends Over Time in Physician Supply

Between 1996/97 and 2000/01, the workforce of physicians in clinical practice in British Columbia increased by 288 medical practitioners (4% relative increase) and the province's population increased by approximately 220,000 (6% relative increase). While there were increases across all physician categories, the smallest gain occurred in the PHC workforce (23 physicians or 1% relative increase). The supply of PHC-related specialists also increased (52 physicians or 4% relative increase), but the largest gains were among other specialists (213 physicians or 10% relative increase). This pattern of large gains in specialists relative to PHC physicians was evident in all health authorities (Appendix 1).

Over the entire timeframe studied (1996/97 to 2004/05) the workforce of physicians in clinical practice in British Columbia increased by 1,024 medical practitioners (14% relative increase) and the population increased by approximately 314,000 (8% relative increase). While there were increases across all physician categories, the smallest gain was in the PHC workforce (276 physicians or 7% relative increase). The supply of PHC-related specialists increased (275 physicians or 22% relative increase), but the largest gains were among other specialists (473 physicians or 22% relative increase). This pattern of large gains in specialists relative to PHC physicians was evident in all health authorities (Appendix 1).

In 1996/97 there were 4,129 PHC physicians in British Columbia, which translates to 106 PHC physicians per 100,000 population. By 2000/01, there were 4,152 PHC physicians or 101 PHC physicians per 100,000. By 2004/05, there were 4,405 PHC physicians or 105 PHC physicians per 100,000. This represents a five per cent relative decrease in supply of PHC physicians between 1996/97 and 2000/01 and a four per cent relative increase between 2000/01 and 2004/05. Over the eight years, there were substantive gains and losses in PHC physicians across health authorities and health service delivery areas (Appendix 3).



Table 2 illustrates that the magnitude of physician gains and losses are attenuated, but only somewhat, depending on the methodology of geographic assignment. The tallies in the first column are the result of newly developed methods that rely primarily on addresses in CPSBC files. When physicians complete annual questionnaires for the College, they disclose work addresses (we selected the most recent). When a work address was not available, we used the address identified in the MSP file. The tallies in the second column of Table 2 rely on addresses identified in the MSP file as being used for billing and payment.

Table 2: Sensitivity Analyses Contrasting Address Information from Two Sources on the Number of PHC Physicians Gained or Lost in Each Health Authority Between 1997/97 and 2000/01

Health authority	Primary source of data used to assign PHC physicians to jurisdictions	
	CSPBC	MSP
Fraser Health	+8	-13
Vancouver Coastal	-82	-46
Vancouver Island	+45	+44
Interior Health	+52	+38
Northern	-2	+3
Total	+23	+23

Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.

Temporal shifts in the size of the workforce and/or population resulted in substantive shifts in PHC physician supply in Vancouver Coastal and Fraser health authorities. Between 1996/97 and 2004/05, the crude supply of PHC physicians in Vancouver Coastal Health Authority declined from 152 to 130 per 100,000 population (14% relative decline) due to increases in population and loss of physicians (Appendix 3). This level of supply, however, remained among the highest across the health authorities. Over the same period, the crude supply in Fraser Health Authority declined from 78 to 77 per 100,000 population (2% relative decline) due to increases in population that outpaced increases in physician supply. This level of supply was lowest among the health authorities in both time periods (Appendix 3).

This analysis is provider based and relates the geographic location of PHC physicians to the size of the population that reside in the same area. It does not consider whether populations cross health authority boundaries to obtain care (which previous work indicates does occur). Therefore, a population-based analysis is necessary to fully understand the utilization of services provided by PHC physicians. Future reports by our research team are intended to offer greater insight into this issue.

Fraser Health Authority

In 2004/05, 2,043 physicians engaged in clinical practice and had a practice address within Fraser Health Authority. Of these, 54 per cent were PHC physicians (n=1,107), which equates to 77 PHC physicians per 100,000 population. PHC physician-to-population ratios show the least variation in Fraser Health and are among the lowest in the province. Fraser North, Fraser East and Fraser South health services delivery areas have 81, 79 and 72 PHC physicians per 100,000 population, respectively (appendices 3 and 4).

Previous research suggests that residents of this authority are among the healthiest in British Columbia. However, there was two-fold variation in health status measures within Fraser Health Authority. The local health area of Hope, with its small and dispersed population, showed the lowest health status, with a premature mortality rate

of 4.12 per 1,000 between 1996 and 2000. By comparison, Delta had a premature mortality rate of 2.18 per 1,000 between 1996 and 2000.

Among the workforce of PHC physicians in Fraser Health Authority in 2004/05, 97 per cent had a general practitioner designation, two per cent had a specialty designation related to PHC, and one per cent had other specialty designations. Among the PHC physician workforce, 70 per cent were male and 30 per cent were female (appendices 2 and 4).

Vancouver Coastal Health Authority

In 2004/05, 3,113 physicians engaged in clinical practice and had a practice address within Vancouver Coastal Health Authority. Of these, 43 per cent were PHC physicians (n=1,352), which equates to 130 PHC physicians per 100,000 population. There was almost a two-fold variation in PHC physician-to-population ratios across health service delivery areas in Vancouver Coastal Health Authority, with Vancouver at 153 PHC physicians per 100,000 and Richmond at 80 per 100,000 (appendices 3 and 4). Populations outside of the Vancouver Health Service Delivery Area, however, are likely to use PHC physicians who reside in that jurisdiction.

Among the workforce of PHC physicians in Vancouver Coastal Health Authority in 2004/05, 94 per cent were general practitioners, three per cent had specialty designations related to PHC, and three per cent had other specialty designations. Among the PHC physician workforce, 58 per cent were male and 42 per cent were female (appendices 2 and 4).

Vancouver Island Health Authority

In 2004/05, 1,689 physicians engaged in clinical practice and had a practice address within Vancouver Island Health Authority. Of these, 54 per cent were PHC physicians (n=907), which equates to 128 general practice providers per 100,000 population. There is some variation in supply across health service delivery areas, with South Vancouver Island at 151 PHC physicians per 100,000 and Central Vancouver Island at 98 per 100,000 (appendices 3 and 4).

Among the workforce of PHC physicians in Vancouver Island Health Authority in 2004/05, 97 per cent had a general practitioner designation, one per cent had specialty designations related to PHC, and two per cent had other specialty designations. Among the PHC physician workforce, 68 per cent were male and 32 per cent were female. PHC physicians in Vancouver Island Health Authority were older compared to the provincial average. The proportion of physicians aged 50 years and older was 49 per cent, in comparison to 43 per cent for the province (appendices 2 and 4).

Interior Health Authority

In 2004/05, 1,278 physicians engaged in clinical practice and had a practice address within Interior Health Authority. Of these, 58 per cent were PHC physicians (n=747), which equates to 106 PHC physicians per 100,000 population. There was variation in supply across health service delivery areas, with Kootenay-Boundary at 134 PHC physicians per 100,000 and Thompson-Cariboo at 90 per 100,000 (appendices 3 and 4).

Among the workforce of PHC physicians in Interior Health Authority in 2004/05, 98 per cent had a general practitioner designation, one per cent had a specialty designation related to PHC, and one per cent had other specialty designations. Among the PHC physician workforce, 68 per cent were male and 32 per cent were female. PHC physicians in Interior Health Authority were younger than the provincial average, as the proportion of physicians aged 50 years and older was 38 per cent, compared to 43 per cent for British Columbia (appendices 2 and 4).

Northern Health Authority

In 2004/05, 435 physicians engaged in clinical practice and had a practice address in Northern Health Authority. Of these, 67 per cent were PHC physicians (n=292), which equates to 96 PHC physicians per 100,000 population. There is some variation in supply across health service delivery areas, with Northwest at 108 PHC physicians per 100,000 and Northeast at 77 per 100,000 (appendices 3 and 4). Relative to the provincial workforce and other health authorities, Northern Health Authority had the highest proportion of PHC physicians.



Among the workforce of PHC physicians in Northern Health Authority in 2004/05, 97 per cent had a general practitioner designation, one per cent had a specialty designation related to PHC, and one per cent had other specialty designations. PHC physicians in the Northern Health were less likely to be female and more likely to be younger. Only 23 per cent were female. The proportion of this workforce aged 50 years and older was 39 per cent, in comparison to 43 per cent for the province (appendices 2 and 4).

Of the physician workforce who had a type of practice similar to specialists (n=99) in Northern Health, 13 per cent had a family physician designation. This is a very high rate when compared to the province as a whole, where only two per cent of the workforce with a type of practice similar to specialists had a family physician designation.

Discussion

There were 8,558 physicians engaged in part- or full-time clinical practice in British Columbia in 2004/05 (204 physicians per 100,000 population or 490 people per physician). Among this provincial workforce, 51 per cent were PHC physicians (105 per 100,000 population or 953 people per physician). Across health authorities, PHC physicians represented a large proportion of the clinical physician workforce in Northern (67%) and a smaller proportion in Interior (58%), Vancouver Island (54%), Fraser (54%) and Vancouver Coastal (43%). The proportion of PHC physicians to total physician supply declined from 55 per cent in 1996/97 to 51 per cent in 2004/05. The supply of PHC physicians and mix of PHC physicians to specialists are especially important to monitor since emerging research suggests that higher ratios of PHC physicians to population and higher rates of PHC physicians to specialists improve health outcomes.^{9,10,11}

One of the more intriguing findings is the extent to which PHC physician supply changed at the provincial level, and the speed with which health authorities gained or lost PHC physicians over the eight-year period. Between 1996/97 and 2000/01, there was a five per cent reduction in the PHC physician-to-population ratio in British Columbia, and a four per cent increase between 2000/01 and 2004/05. This equates to a one per cent reduction in the PHC physician-to-population ratio in British Columbia over the entire time period. Importantly, this report solely focuses on head counts and relates this to the size of the population who reside in the same geographic area—we do not assess physician productivity nor the delivery of services to patients from other jurisdictions or other providers. Future reports by CHSPR researchers will assess temporal shifts in aggregate supply using metrics of volume and productivity, as well as population-based patterns of use of physician services.

The most notable reduction in supply between 1996/97 and 2004/05 occurred in Vancouver Coastal (14% relative decline), but this health authority retained the highest PHC physician-to-population ratio in 2004/05 (130 per

100,000) in the province. The second largest reduction in supply occurred in Fraser Health (2% relative decline), and this health authority had the lowest level of supply in 2004/05 (77 per 100,000). Supply increased in Northern Health Authority (7% relative increase), Interior Health Authority (12% relative increase) and Vancouver Island Health Authority (13% relative increase).

Temporal shifts in the number of PHC physicians in clinical practice are attributable to a number of factors. At the provincial level, change can be attributed to immigration and emigration across jurisdictions, as well as workforce entrants and exits. At the health authority level, change can be attributed to migration within the province, workforce entrants and exits, as well as physicians who relocate their practice to another health region in the province. At the provincial and health authority levels, change can be attributed to the fact that physicians change specialty designations and practice patterns over time. If health authorities seek to determine the underlying causes of the temporal shifts in supply highlighted in this report, CHSPR has data sources that support this type of work.

The validity of geographic-based analyses relies on the completeness and accuracy of data regarding each physician's clinical practice location. The data sources used to create this report contain a number of addresses for each physician. The challenge was to select the geographic location from which each physician delivers the majority of their services, when we know some physicians work from multiple locations, potentially across jurisdictions. This report relies on newly created methods to assign physicians to jurisdictions based on CPSBC self-report data regarding workplace. Sensitivity analysis conducted on our findings regarding gains or losses of PHC physicians across health authorities suggests that our estimates are somewhat attenuated using more traditional methods of assigning physicians to jurisdictions using billing data. The BC Ministry of Health has established methods of assigning physicians to geographic locations based on the health authority from which the majority of their patients are derived. Future work might compare (cross-validate) these ap-

proaches to assess the robustness of the findings presented here, and to learn more about the geographic distribution of physician supply and delivery of medical services.

Across health authorities, there was almost a two-fold variability in PHC physician supply in 2004/05, with Vancouver Coastal Health Authority at 130 per 100,000 and Fraser Health Authority at 77 per 100,000. Variability was also dramatic across health service delivery areas, with Vancouver at 153 per 100,000 population and Fraser South at 72 per 100,000 population. But, it is important to juxtapose measures of supply with geographic differences in relative need for health care. Therefore, we took a glimpse at the level of equity in geographic distribution of PHC physicians relative to population health status.

Across all health service delivery areas in the province, we found no association between PHC physician supply and British Columbians' need for health care in 2004/05—communities with lower levels of health did not have more PHC physicians, and communities with higher levels of health did not have fewer PHC physicians. Our team has previously documented disparities in geographic distribution of PHC physicians, but at that time we also documented equity in utilization of PHC services. In combination, these results suggest that people move across jurisdictional boundaries to obtain the PHC services they need. The extent of this mobility has been estimated in a report our research group released in early 2005.¹²

When counts of PHC-related registered nurses and PHC physicians were combined in another CHSPR report,¹³ variability in supply among the workforce of nurses or physicians is attenuated. Where there are fewer PHC physicians in British Columbia, there are more PHC-related registered nurses, and visa versa. In 2000/01, we counted 3,179 registered nurses and 4,152 physicians that provided PHC-related services in British Columbia—registered nurses represented 43 per cent of the PHC workforce of physicians and nurses at a period of time that predates policy objectives to enhance the interdisciplinary mix of providers delivering PHC.



It is also interesting to consider the workforce of physicians registered as general practitioners in 2004/05, since anecdote and evidence indicate that many of these physicians may elect to narrow their activities to certain specialized services. We determined that 90 per cent of these physicians had a PHC type of practice, nine per cent had a type of practice related to PHC, and one per cent had a type of practice associated with other specialties in 2004/05. This compares to 92 per cent, eight per cent, and 0.1 per cent, respectively in 1996/97, which suggests slow movement toward sub-specialization within the general practitioner workforce.

Using new methodology, these analyses identify and describe the supply of physicians in order to identify those most likely to deliver PHC. Moreover, we focus on those who deliver clinical services. It is important to acknowledge, however, that population-based administrative data sources have not yet been sufficiently developed to substantiate the degree to which physicians deliver all of the core functions of PHC—first contact care, and services that are responsive, comprehensive, continuous and coordinated.

While this report focuses on counting the number of PHC physicians in historic periods, current policy and planning activities related to PHC require more information than head counts and demographic trends. Future reports by our research team are intended to offer greater insight into the workloads and other important features of general type of practice physicians, as well as the population's use of their services. That work will rely on the methods described here.

As mentioned, the unique and distinguishing features of PHC physicians is that they deliver first contact care, and services that are responsive, comprehensive, continuous and coordinated. In an attempt to identify, count and describe PHC physicians, these analyses rely on billing patterns to determine type of practice or functional specialty. This method of identifying PHC physicians was adopted due to the unique structure of administrative data in British Columbia. The use of other methods might be appropriate in order to validate or refine this work. For example,

one author of this report (Watson) has described the comprehensiveness of services delivered by general practitioners by assessing the frequency and scope of diagnostic codes used by physicians in Manitoba.¹⁴ Physicians' role in delivering PHC could also be described by assessing referral patterns to determine the degree to which physicians are the first point of contact. However, this type of work is only worthwhile if it is a priority among the policy, management and practice communities.

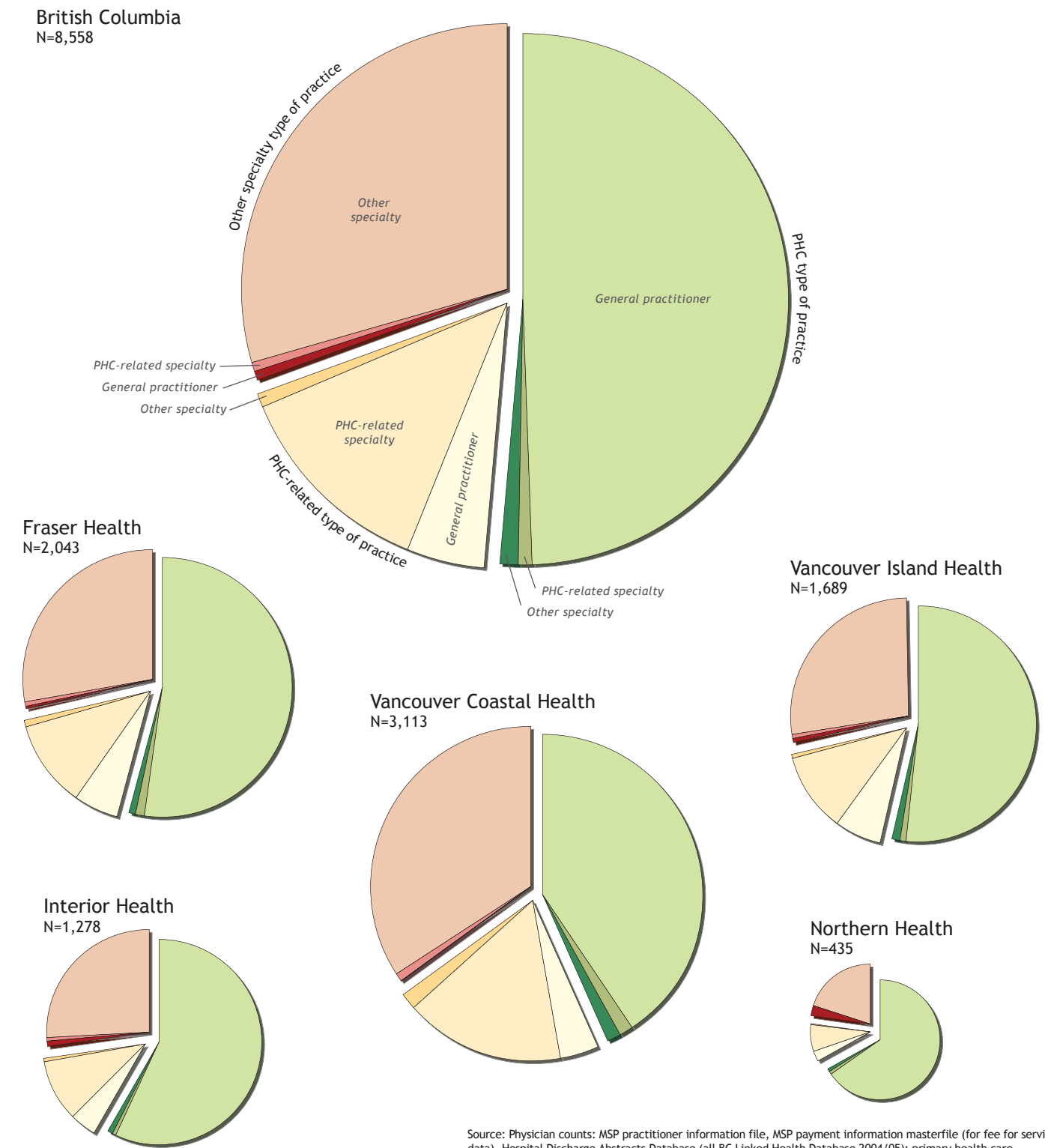
There is still much to learn about the health of British Columbians and the many facets of their PHC system. There is also much work to be done to improve the administrative data infrastructure in British Columbia—particularly in relation to data from alternative funding sources and the timeliness of those data—to support PHC planning and evaluation. Future reports by our research team are intended to offer greater insight into other important characteristics of PHC physicians, as well as British Columbians' use of their services.

References

- 1 Starfield, B. Primary care: concept, evaluation and policy. New York: Oxford University Press: 1992.
- 2 Watson DE, Broemeling A-M, Reid RJ, Black C. A results-based logic model for PHC: Users guide to a results-based logic model for PHC: Laying an evidence-based foundation to guide performance measurement, monitoring and evaluation. Centre for Health Services and Policy Research. Vancouver, British Columbia: 2004.
- 3 Watson DE, Bogdanovic B, Heppner P, Katz A, Reid R, Roos N. Supply, availability and use of general practitioners in Winnipeg [monograph on the Internet]. Winnipeg (MB): Manitoba Centre for Health Policy, University of Manitoba; 2003 [cited 2005 Feb 10]. Available from: <http://www.umanitoba.ca/centres/mchp/reports/pdfs/famphys.pdf>
- 4 Watson DE et al. . Methods to develop and validate a physician resource database to support health services and policy research. Centre for Health Services and Policy Research. Vancouver, British Columbia: 2006.
- 5 Starr D. Verhulst L. A guide to the interpretation of the Medical Services Plan practitioner profiles. British Columbia Ministry of Health. Victoria, British Columbia: 2003.
- 6 McKendry R. Watson D. Goertzen D. Reid RJ. Mooney D. Solo and group practice among physicians who have a general type of practice, 1996/97 and 2000/01. Vancouver, BC: Centre for Health Services and Policy Research. Vancouver, British Columbia: Forthcoming.
- 7 Birch S, Eyles J. (1991). Needs-based planning of health care: A critical appraisal of the literature. Hamilton, ON: Centre for Health Economics and Policy Analysis, McMaster University. Report no. 91-5.
- 8 McGrail KM, Schaub P, Black C. The British Columbia Health Atlas. 2nd ed. Vancouver (BC): Centre for Health Services and Policy Research, University of British Columbia; 2004. Report No. CHSPR 04:12. Available from <http://www.health-atlas.chspr.ubc.ca>
- 9 Farmer FL et al., Poverty, primary care, and age-specific mortality. *Journal of Rural Health* 7, no. 2 (1991): 153-169.
- 10 Shi L. Primary care, specialty care, and life chances. *International Journal of Health Services* 24, no. 3 (1994): 431-458.
- 11 Shi L, Macinko J, Starfield B, Politzer R. Xu J. Primary care, race, and mortality in US states. *Social Science & Medicine* 61 (2005) 65-75.
- 12 Watson DE, Krueger H, Mooney D, Black C. Planning for renewal: Mapping PHC in British Columbia. Centre for Health Services and Policy Research. Vancouver, British Columbia: 2005.
- 13 Wong ST, Watson DE, Young E, Mooney D, MacLeod M. Who are the primary health care registered nurses in British Columbia? [monograph on the Internet]. Vancouver (BC): Centre for Health Services and Policy Research.
- 14 Watson DE, Bogdanovic B, Heppner P, Katz A, Reid R, Roos N. Supply, availability and use of general practitioners in Winnipeg [monograph on the Internet]. Winnipeg (MB): Manitoba Centre for Health Policy, University of Manitoba; 2003 [cited 2005 Feb 10]. Available from: <http://www.umanitoba.ca/centres/mchp/reports/pdfs/famphys.pdf>



Appendix 1: Physicians in Clinical Practice by Type of Practice and Most Recent Registered Specialty, 2004/05



Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.



Physicians in Clinical Practice by Type of Practice and Most Recent Registered Specialty, 1996/97 to 2004/05

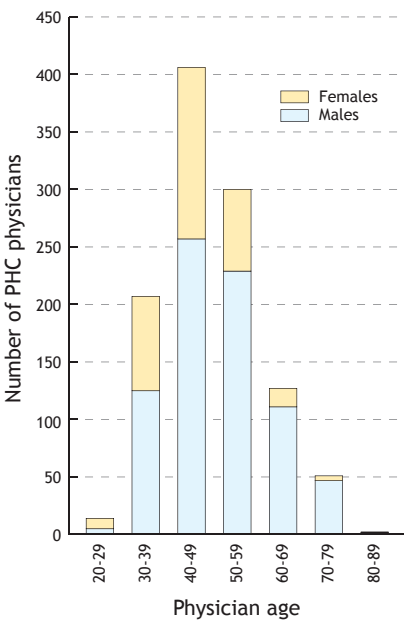
Type of practice	1996/97				2004/05				Change	
	Most recent registered specialty									
	GP	PHC-related specialty	Other specialty	Total	GP	PHC-related specialty	Other specialty	Total	No.	%
British Columbia										
PHC physician	3,893	73	163	4,129	4,233	87	85	4,405	276	7%
PHC-related physician	342	916	21	1,279	412	1,061	81	1,554	275	22%
Other specialist	5	36	2,085	2,126	52	49	2,498	2,599	473	22%
Total	4,240	1,025	2,269	7,534	4,697	1,197	2,664	8,558	1,024	14%
Fraser										
PHC physician	955	8	28	991	1,072	21	14	1,107	116	12%
PHC-related physician	86	179	2	267	115	221	16	352	85	32%
Other specialist	1	7	439	447	10	12	562	584	137	31%
Total	1,042	194	469	1,705	1,197	254	592	2,043	338	20%
Vancouver Coastal										
PHC physician	1,323	47	88	1,458	1,271	42	39	1,352	-106	-7%
PHC-related physician	102	468	14	584	125	502	45	672	88	15%
Other specialist	2	17	932	951	8	22	1,059	1,089	138	15%
Total	1,427	532	1,034	2,993	1,404	566	1,143	3,113	120	4%
Vancouver Island										
PHC physician	734	10	24	768	877	11	19	907	139	18%
PHC-related physician	97	136	4	237	108	182	12	302	65	27%
Other specialist	-	8	378	386	8	9	463	480	94	24%
Total	831	154	406	1,391	993	202	494	1,689	298	21%
Interior										
PHC physician	617	6	10	633	729	9	9	747	114	18%
PHC-related physician	49	106	1	156	52	125	7	184	28	18%
Other specialist	1	4	264	269	13	6	328	347	78	29%
Total	667	116	275	1,058	794	140	344	1,278	220	21%
Northern										
PHC physician	264	2	13	279	284	4	4	292	13	5%
PHC-related physician	7	27	0	34	12	31	1	44	10	29%
Other specialist	1	0	70	71	13	0	86	99	28	39%
Total	272	29	83	384	309	35	91	435	51	13%
Missing location										
PHC physician	0	0	0	0	0	0	0	0	0	-
PHC-related physician	1	0	0	1	0	0	0	0	-1	-
Other specialist	0	0	2	2	0	0	0	0	-2	-
Total	1	0	2	3	0	0	0	0	-3	-

Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.

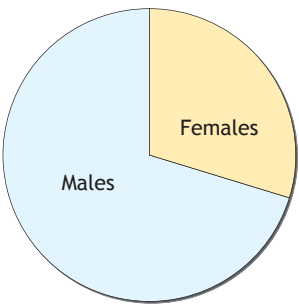
PHC-related specialty includes the following MRRS codes: ObGyn, pediatrics, internal medicine, geriatric medicine, and emergency medicine. Primary health care physician includes the following TOP specialties: GP, GP (miscellaneous), GP alternative payments at 50%+, PHCO physician, salaried or contract. PHC-related physician includes the following TOP specialties: ObGyn, pediatrics, internal medicine, geriatric medicine, emergency medicine, GP-anesthesia 35%+, methadone program, GP surgical assistant 35%+, GP ObGyn 35%+, and gerontology GP 45%+.

Appendix 2: PHC Physician Demographics by Health Authority, 2004/05

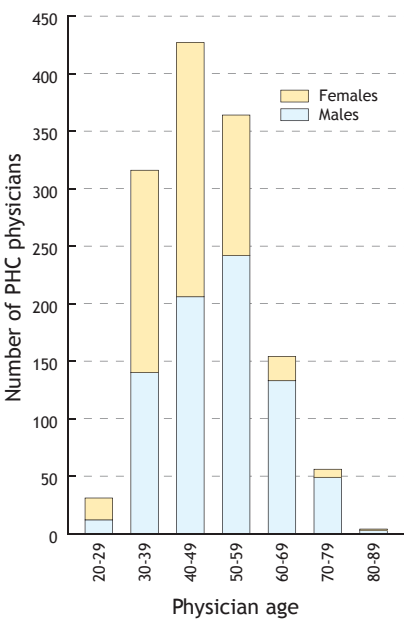
Fraser Health
PHC physicians by age and sex



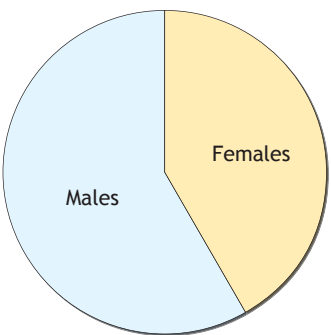
Fraser Health
PHC physicians by sex



Vancouver Coastal Health
PHC physicians by age and sex



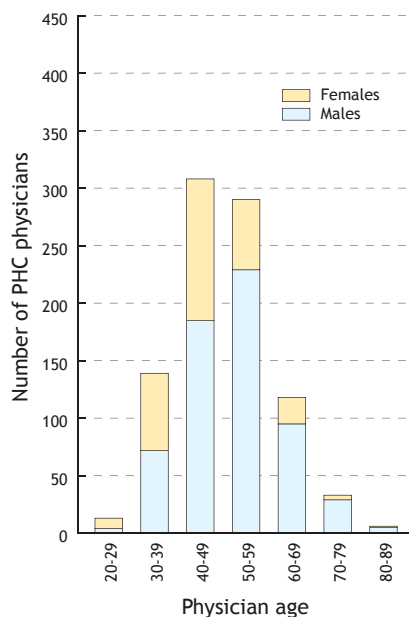
Vancouver Coastal Health
PHC physicians by sex



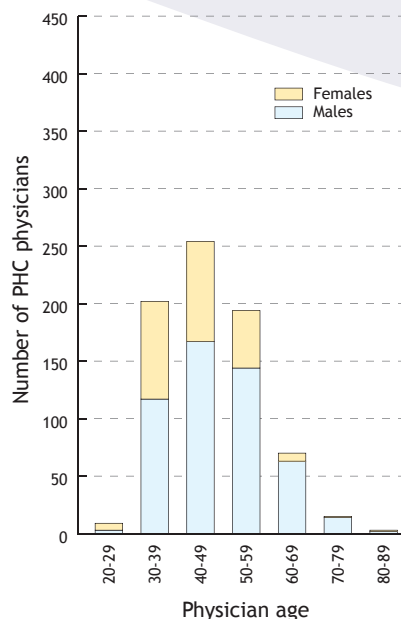
Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05.



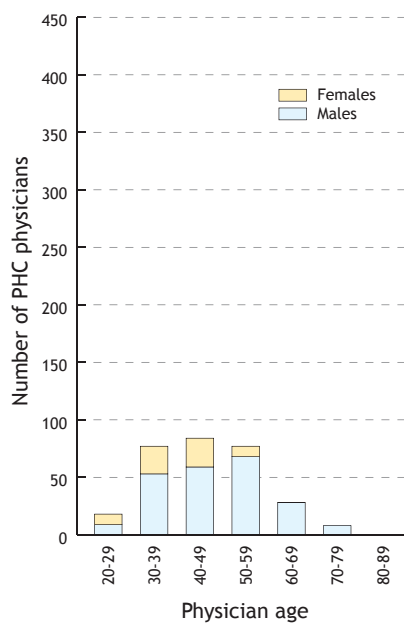
Vancouver Island Health
PHC physicians by age and sex



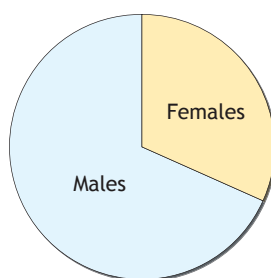
Interior Health
PHC physicians by age and sex



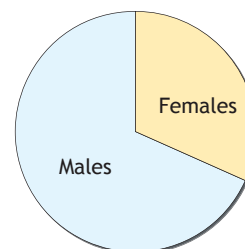
Northern Health
PHC physicians by age and sex



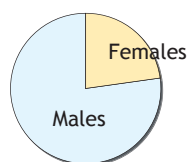
Vancouver Island Health
PHC physicians by sex



Interior Health
PHC physicians by sex



Northern Health
PHC physicians by sex



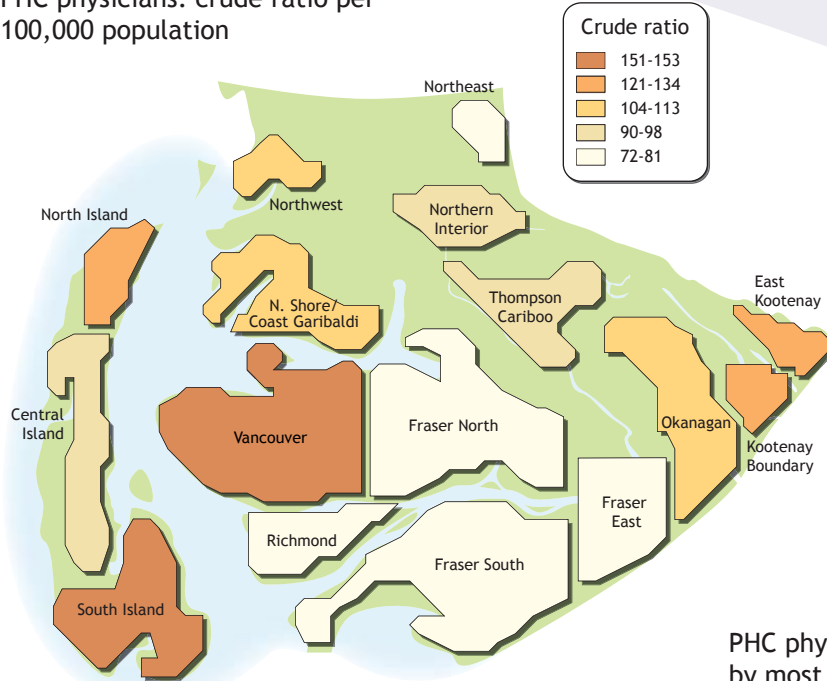
Appendix 3: PHC Physicians by Health Service Delivery Area, 2004/05



Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.

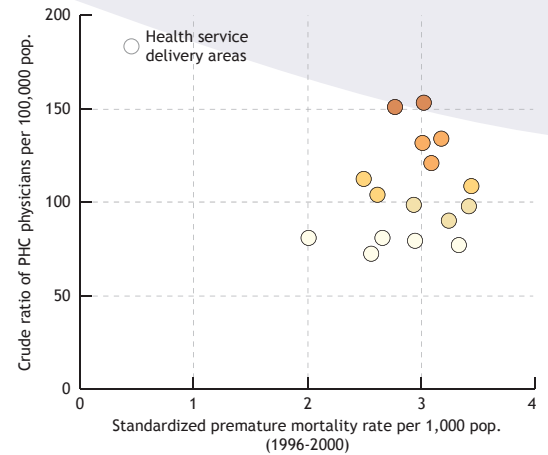


PHC physicians: crude ratio per 100,000 population



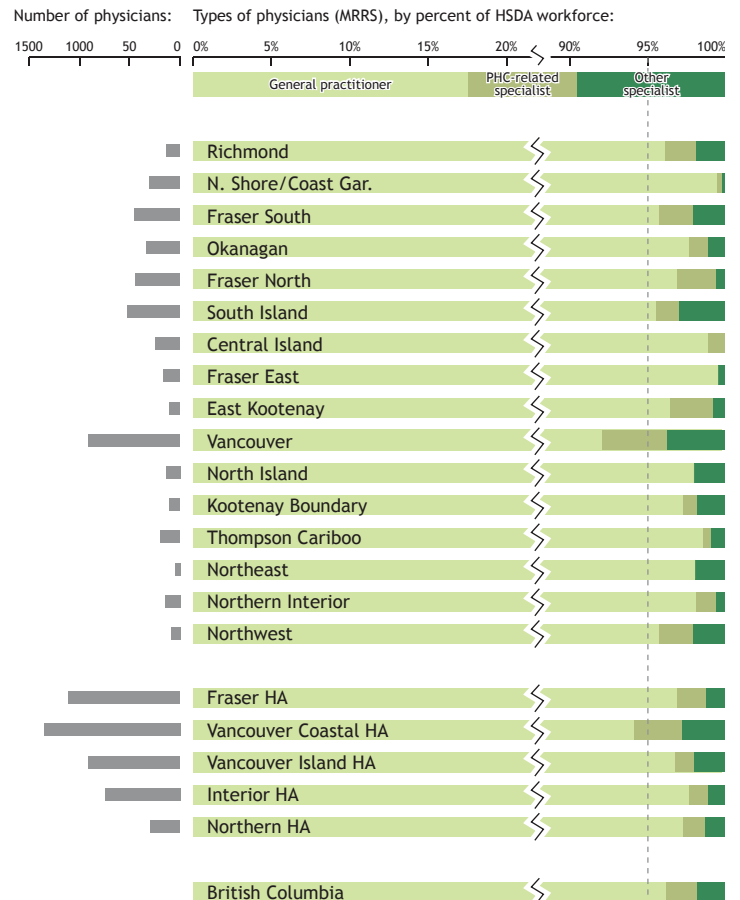
This map shows BC's health service delivery areas sized by their population instead of their area. Shape and contiguity is preserved as much as possible. An area the size of this square □ is equivalent to 2,000 people (2001).

PHC physicians: crude ratio per 100,000 population and standardized premature mortality rate (PMR)

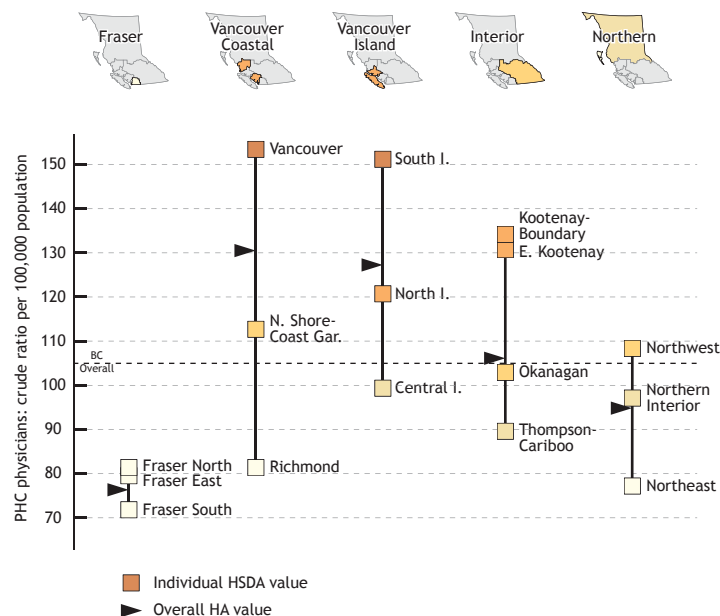


PHC physicians: head counts and proportions by most recent registered specialty (MRRS)

HSDAs and HAs are ordered by premature mortality rate (PMR)



PHC physicians: crude ratio per 100,000 population



Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats. PMR: BC Vital Statistics Agency; Hospital separations data, BC Ministry of Health; PEOPLE 28, BC Stats, all 1996-2000 data.

WHO ARE THE PRIMARY HEALTH CARE PHYSICIANS IN BRITISH COLUMBIA?

PHC Physicians by Health Service Delivery Area, Change 1996/97 to 2004/05

HSDA	Population			PHC Physicians			Ratio per 100,000		
	1996/97	2004/05	% Change	1996/97	2004/05	Change	1996/97	2004/05	% Change
Fraser									
Fraser South	542,707	626,227	15%	387	454	67	71	72	2%
Fraser North	489,636	554,439	13%	420	447	27	86	81	-6%
Fraser East	231,345	260,161	12%	184	206	22	80	79	0%
Overall	1,263,688	1,440,827	14%	991	1,107	116	78	77	-2%
Vancouver Coastal									
Richmond	155,005	172,714	11%	142	139	-3	92	80	-12%
N. Shore - Coast Gar.	255,139	271,082	6%	289	305	16	113	113	-1%
Vancouver	546,211	593,174	9%	1,027	908	-119	188	153	-19%
Overall	956,355	1,036,970	8%	1,458	1,352	-106	152	130	-14%
Vancouver Island									
South Vancouver Island	331,761	346,523	4%	421	523	102	127	151	19%
Central Vancouver Island	233,459	247,461	6%	221	243	22	95	98	4%
North Vancouver Island	116,744	116,596	0%	126	141	15	108	121	12%
Overall	681,964	710,580	4%	768	907	139	113	128	13%
Interior									
Okanagan	295,007	323,396	10%	271	335	64	92	104	13%
East Kootenay	79,083	81,397	3%	77	107	30	97	131	35%
Kootenay Boundary	81,625	79,718	-2%	92	107	15	113	134	19%
Thompson Cariboo	213,880	219,483	3%	193	198	5	90	90	0%
Overall	669,595	703,994	5%	633	747	114	95	106	12%
Northern									
Northeast	64,721	66,222	2%	46	51	5	71	77	8%
Northern Interior	155,508	153,760	-1%	134	150	16	86	98	13%
Northwest	90,212	84,030	-7%	99	91	-8	110	108	-1%
Overall	310,441	304,012	-2%	279	292	13	90	96	7%
British Columbia									
Overall	3,882,043	4,196,383	8%	4,129	4,405	276	106	105	-1%

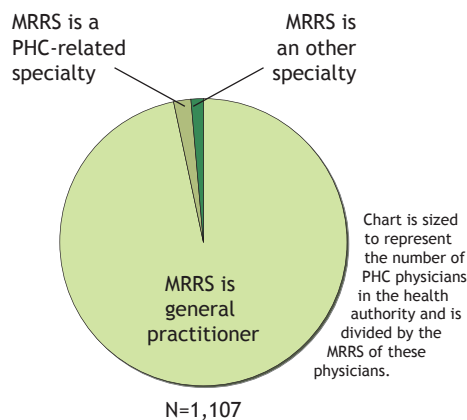
Sources: Physician counts: MSP practitioner information file, MSP payment information master file (for fee-for-service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 1996/97 and 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 1996/97 and 2004/05. Population counts: PEOPLE 28 and PEOPLE 30, BC Stats.



Appendix 4: PHC Physicians by Health Authority, 2004/05

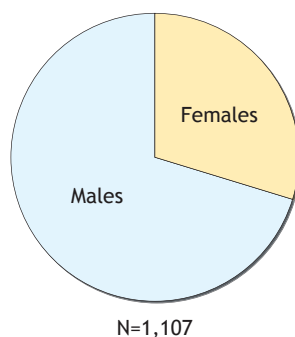
PHC Physicians in Fraser Health Authority, 2004/05

PHC physicians: Head counts and proportions by most recent registered specialty (MRRS)

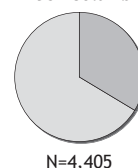


PHC physicians: Head counts

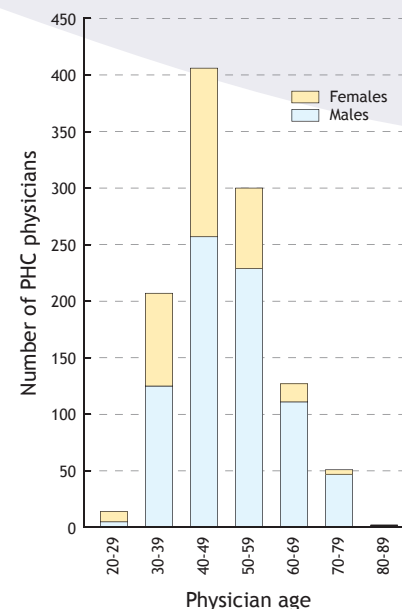
By sex



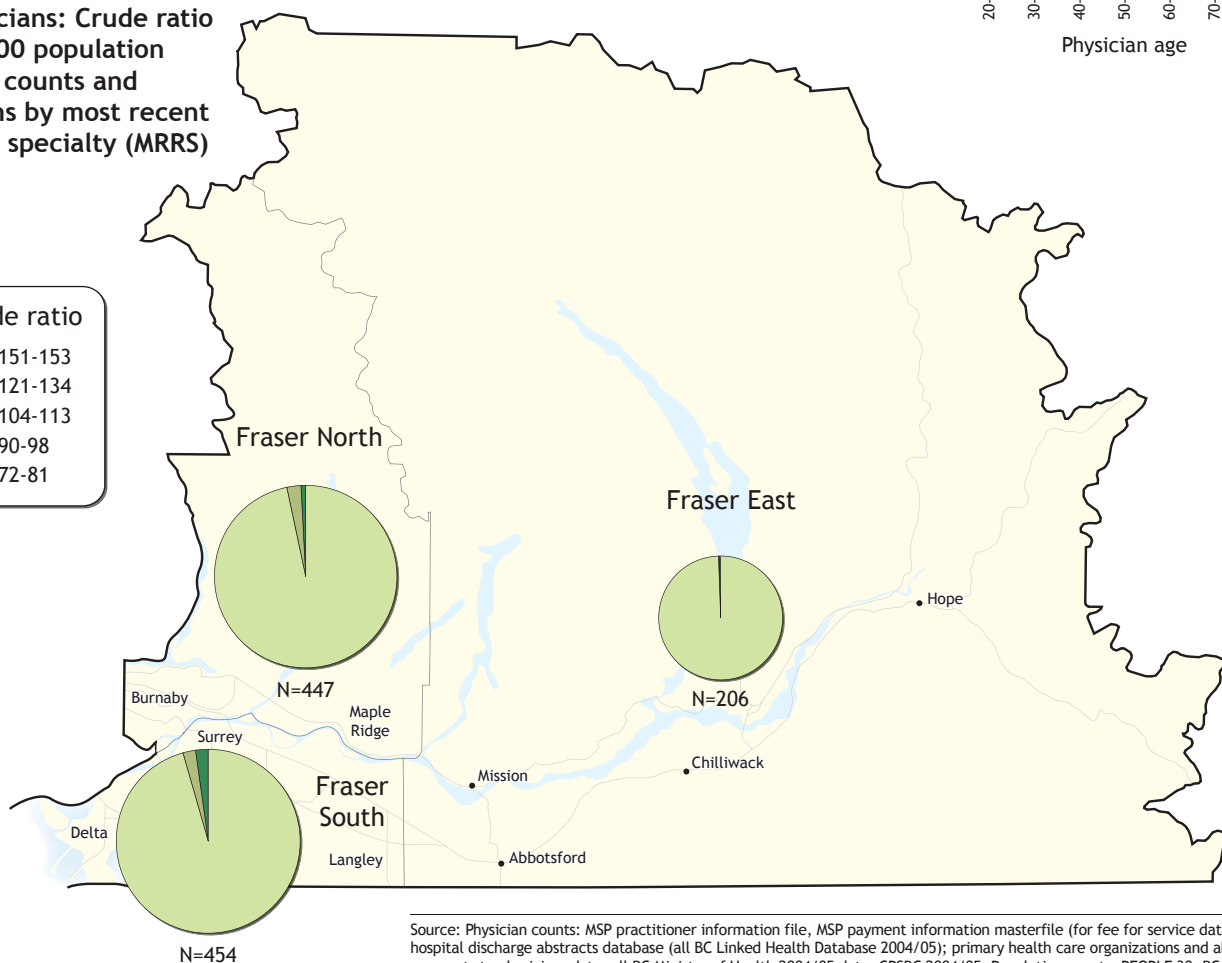
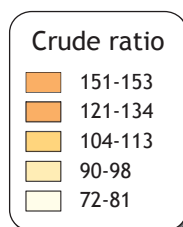
British Columbia



By age and sex



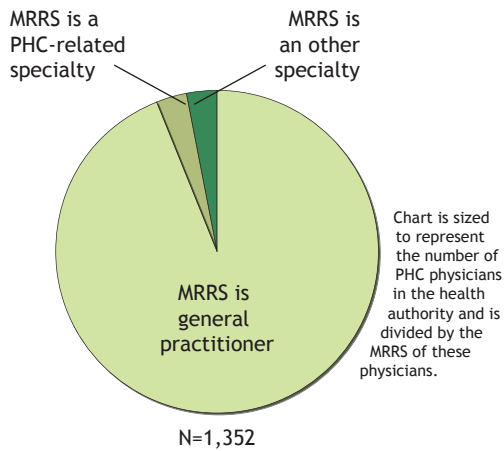
PHC physicians: Crude ratio per 100,000 population with head counts and proportions by most recent registered specialty (MRRS)



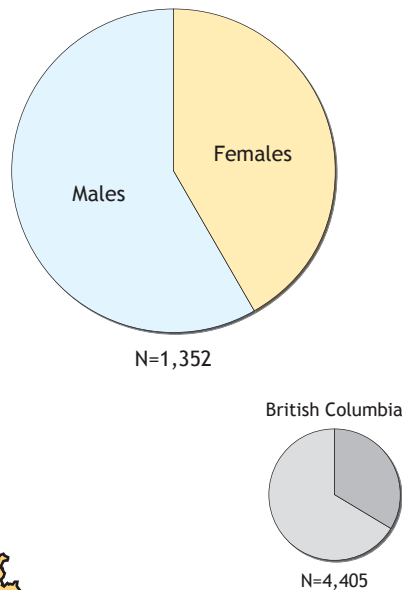
Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), hospital discharge abstracts database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.

PHC Physicians in Vancouver Coastal Health Authority, 2004/05

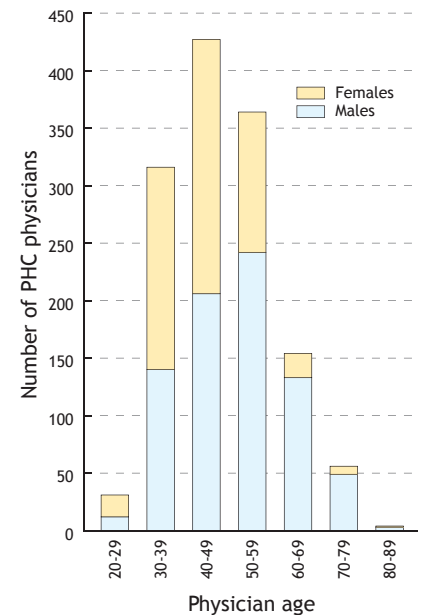
PHC physicians: Head counts and proportions by most recent registered specialty (MRRS)



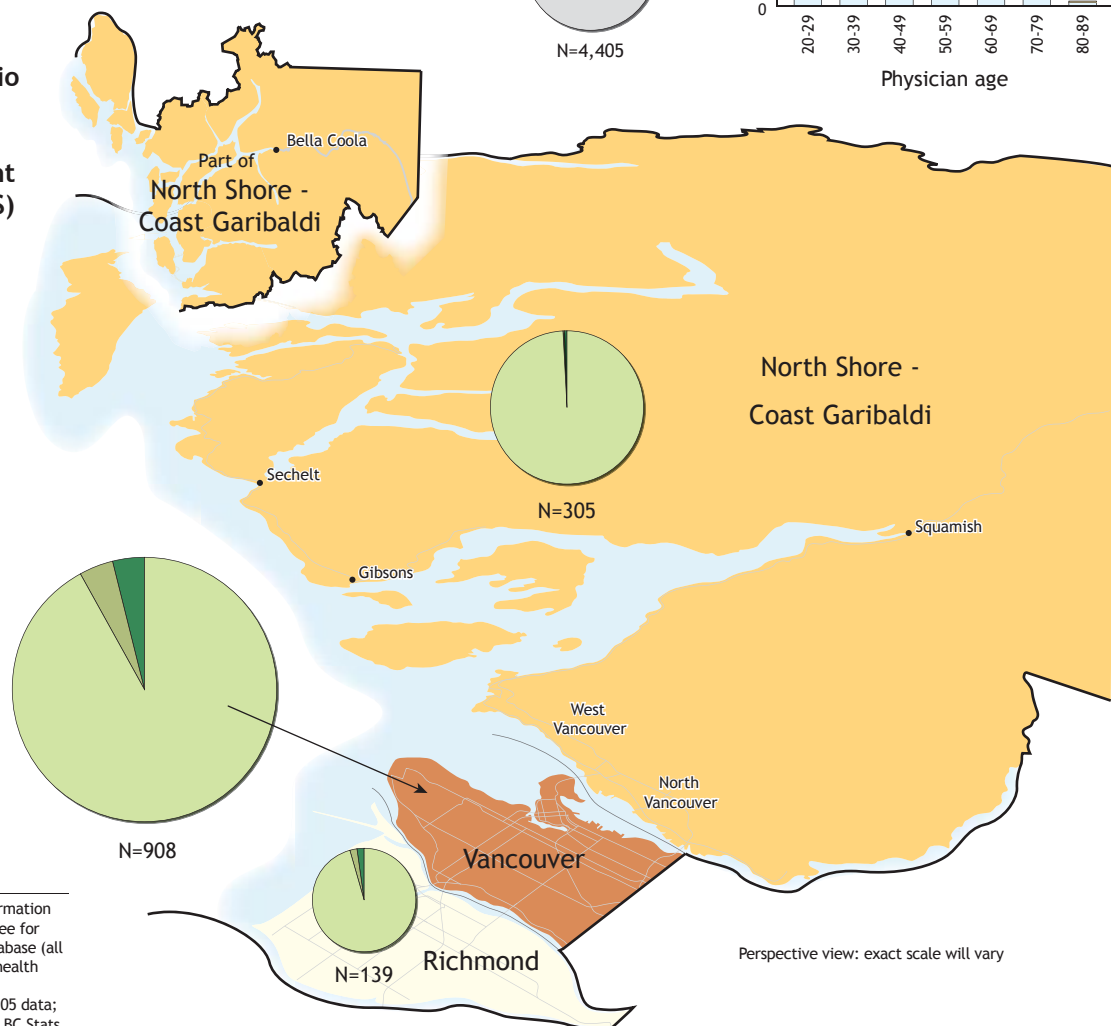
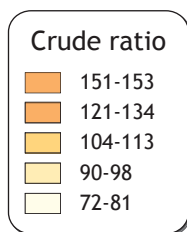
PHC physicians: Head counts By sex



By age and sex



PHC physicians: Crude ratio per 100,000 population with head counts and proportions by most recent registered specialty (MRRS)

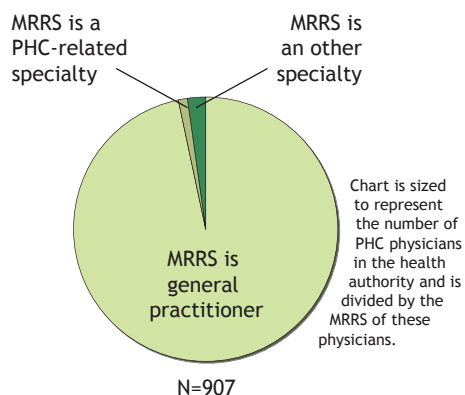


Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.



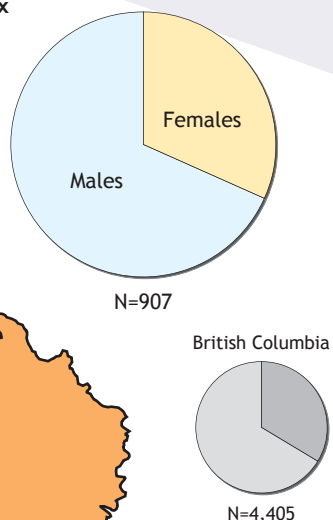
PHC Physicians in Vancouver Island Health Authority, 2004/05

PHC physicians: Head counts and proportions by most recent registered specialty (MRRS)

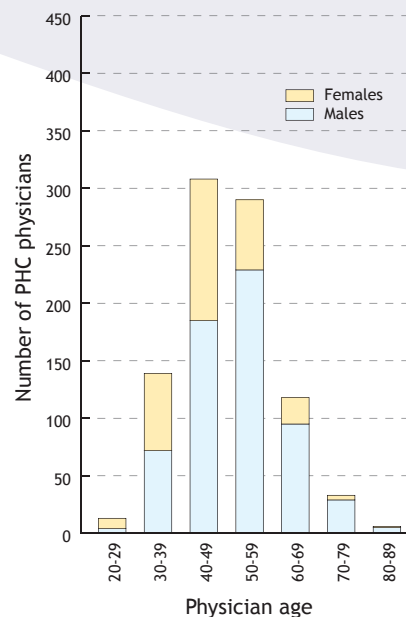


PHC physicians: Head counts

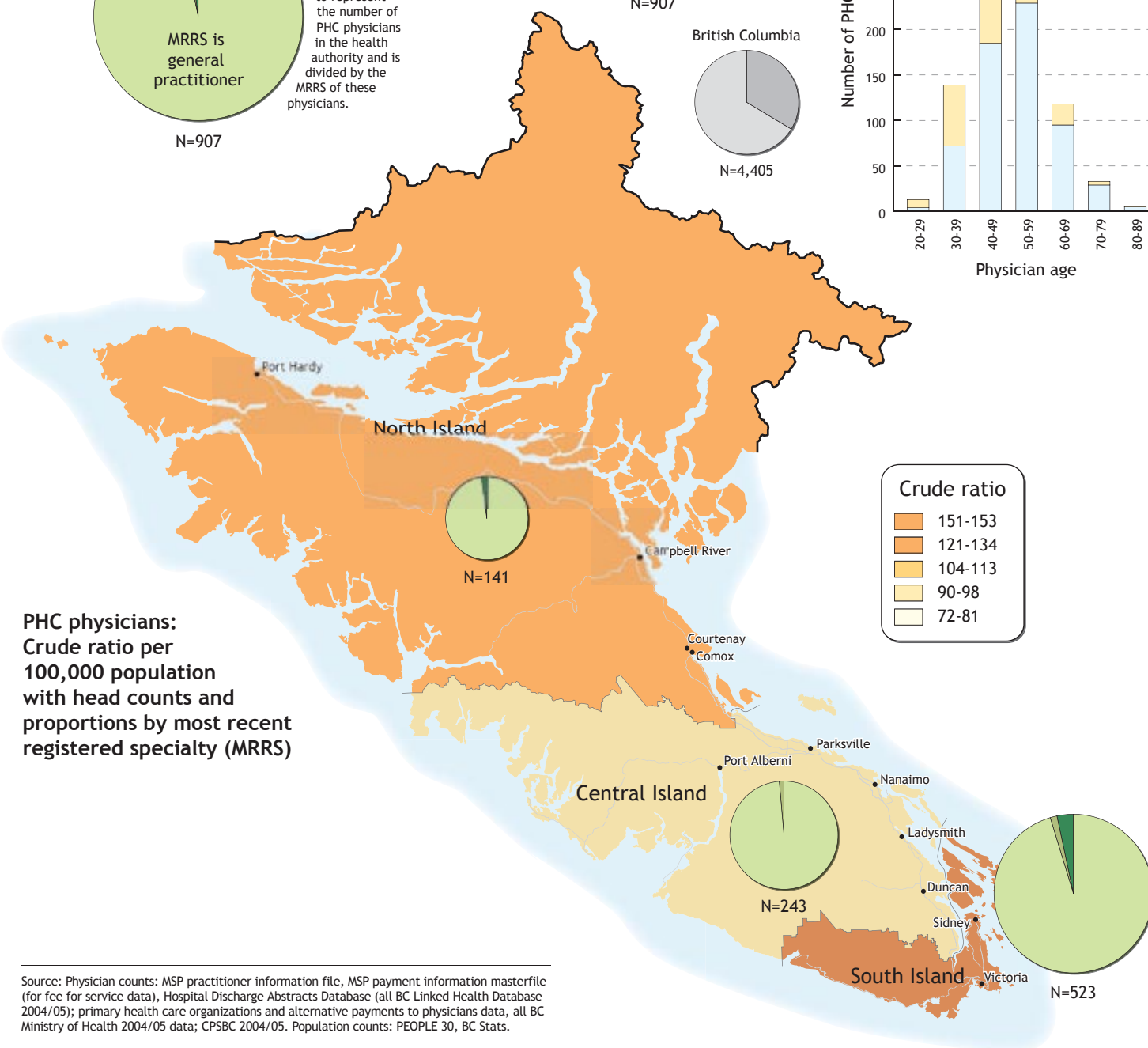
By sex



By age and sex



PHC physicians: Crude ratio per 100,000 population with head counts and proportions by most recent registered specialty (MRRS)

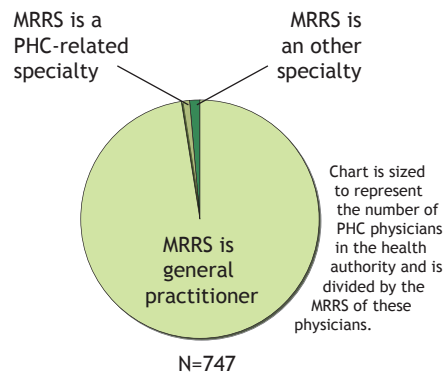


Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.

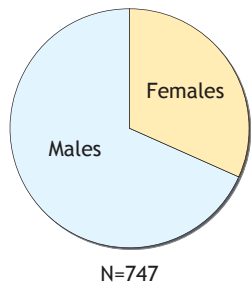
WHO ARE THE PRIMARY HEALTH CARE PHYSICIANS IN BRITISH COLUMBIA?

PHC Physicians in Interior Health Authority, 2004/05

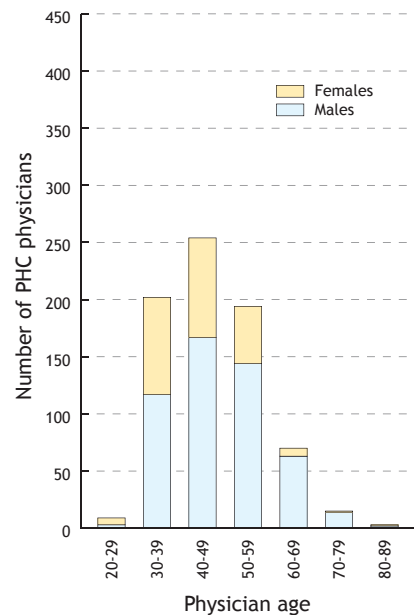
PHC physicians: Head counts and proportions by most recent registered specialty (MRRS)



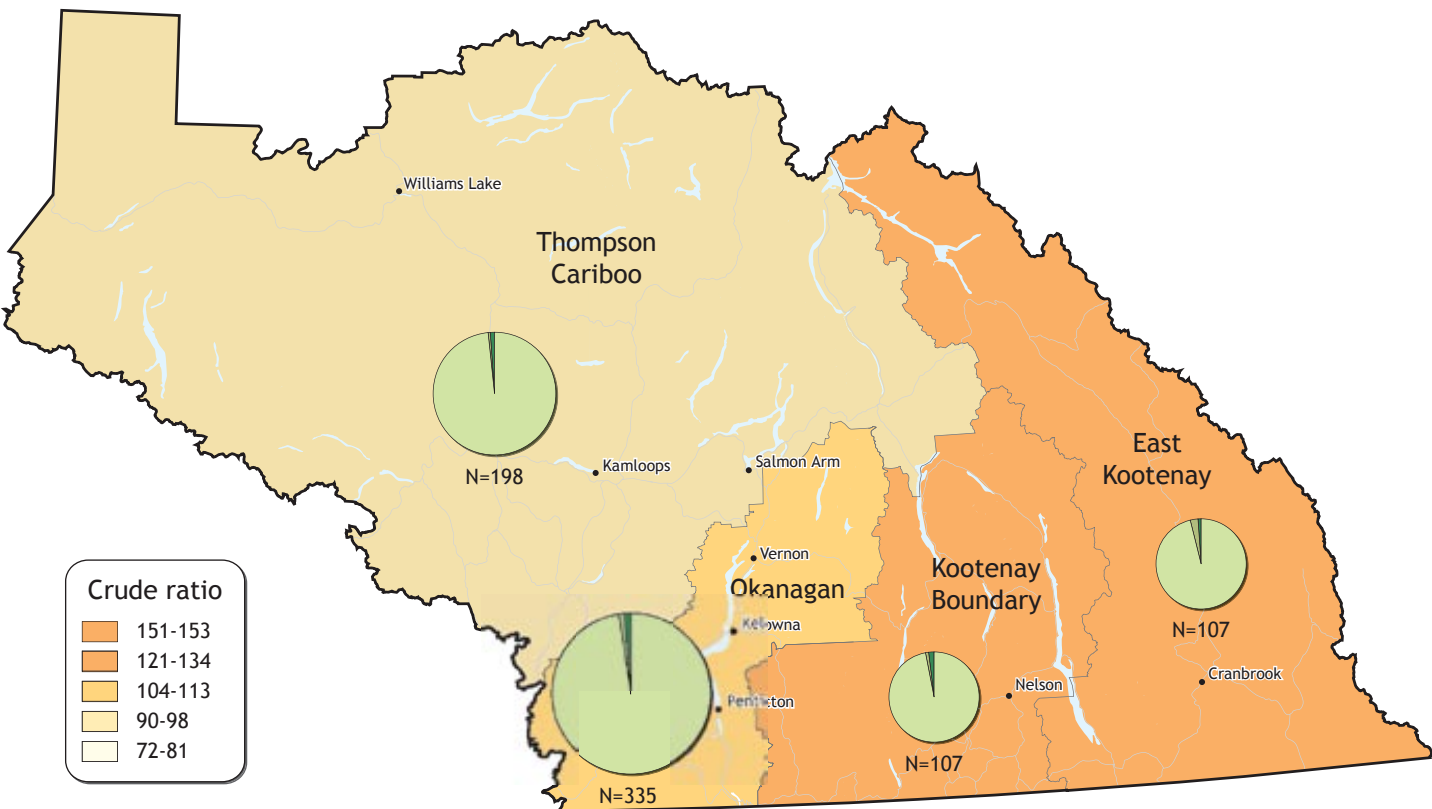
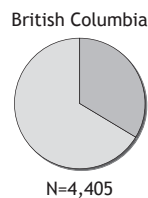
PHC physicians: Head counts By sex



By age and sex



PHC physicians: Crude ratio per 100,000 population with head counts and proportions by most recent registered specialty (MRRS)

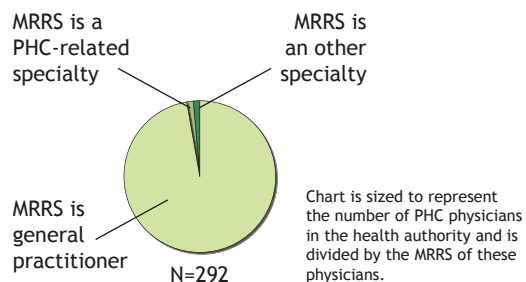


Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.



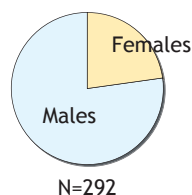
PHC Physicians in Northern Health Authority, 2004/05

PHC physicians: Head counts and proportions by most recent registered specialty (MRRS)

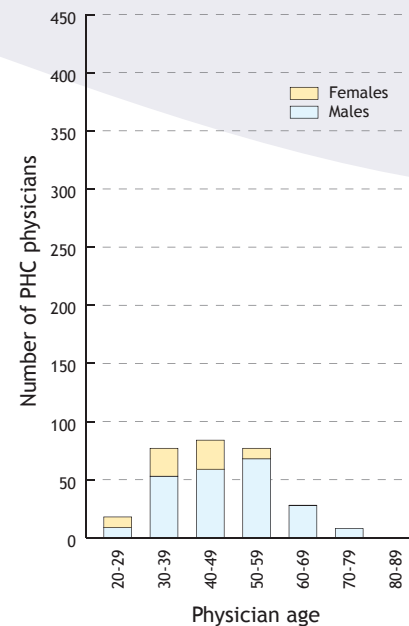


PHC physicians: Head counts

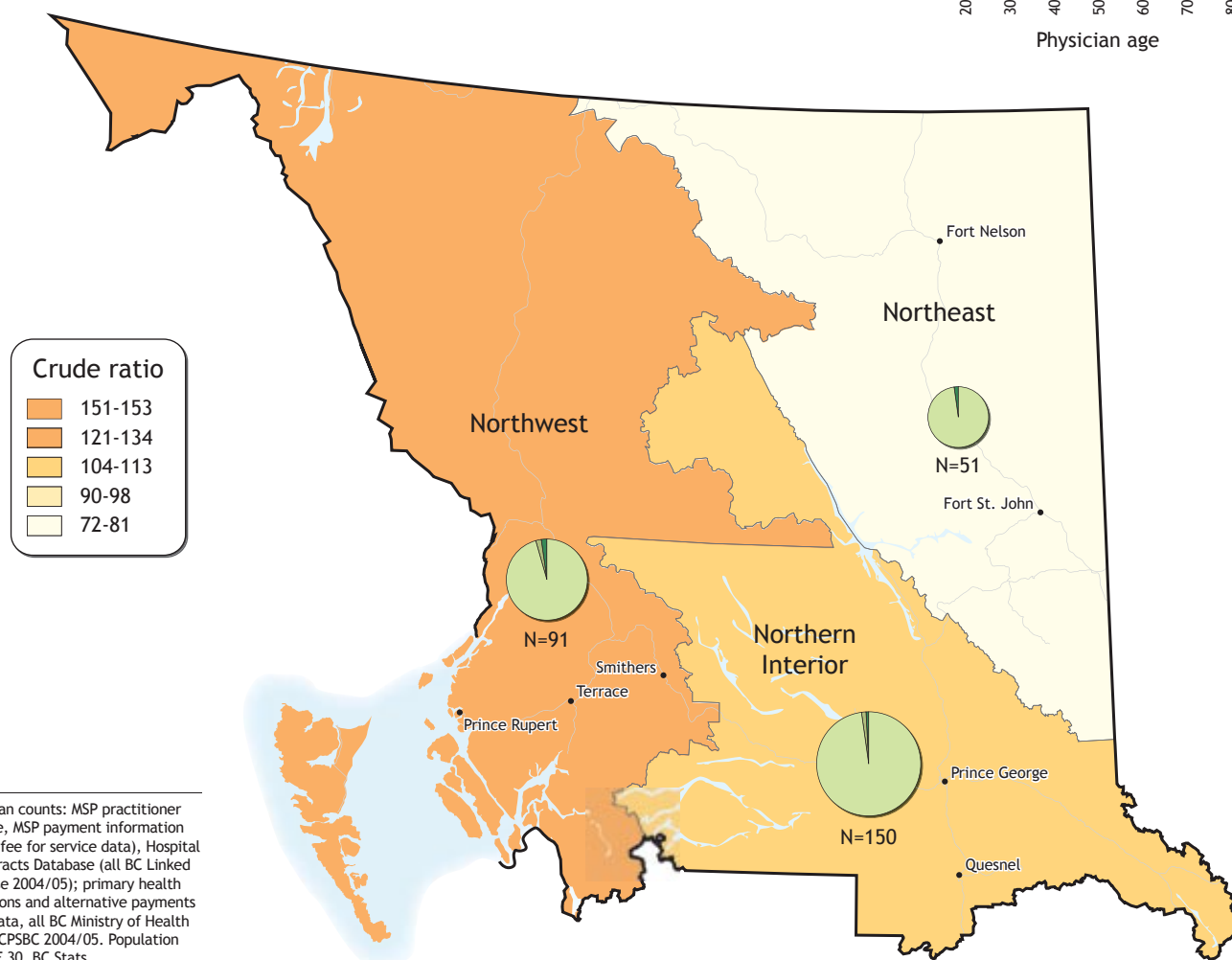
By sex



By age and sex



PHC physicians: Crude ratio per 100,000 population with head counts and proportions by most recent registered specialty (MRRS)



Source: Physician counts: MSP practitioner information file, MSP payment information masterfile (for fee for service data), Hospital Discharge Abstracts Database (all BC Linked Health Database 2004/05); primary health care organizations and alternative payments to physicians data, all BC Ministry of Health 2004/05 data; CPSBC 2004/05. Population counts: PEOPLE 30, BC Stats.

Appendix 5: Type of Practice and Most Recent Registered Specialty Classifications

Most Recent Registered Specialty

General practitioners

00 Family Practice

PHC-related specialties

24 Geriatric Medicine
15 Internal Medicine
14 Paediatrics
05 Obstetrics and Gynaecology
28 Emergency Medicine

Other specialties

01 Dermatology
02 Neurology
44 Rheumatology
45 Clinical Immunology and Allergy
06 Ophthalmology
07 Otolaryngology
09 Neurosurgery
10 Orthopaedic Surgery
11 Plastic Surgery
12 Cardio and Thoracic Surgery
13 Urology
47 Vascular Surgery
48 Thoracic Surgery
08 General Surgery
19 Paediatric Cardiology
46 Medical Genetics
03 Psychiatry
04 Neuropsychiatry
18 Anaesthesia
16 Radiology
33 Nuclear Medicine
17 Pathology
29 Medical Microbiology
21 Public Health
23 Occupational Medicine
20 Physical Medicine and Rehab

Type of Practice

PHC physicians

00 General Practice
55 GP (miscellaneous)
56 GP (90%+)
61 GP Alternative payments at 50%+
63 PHCO Physician
70 Salaried physician or contact

PHC-related physicians

24 Geriatric Medicine
15 Internal Medicine
52 Internal Medicine-GP at 50%+
14 Paediatrics
27 Pediatrics-GP at 50%+
05 Obstetrics and Gynaecology
28 Emergency Medicine
53 GP - Anesthesia 35%+
58 Methadone Program at 10%+
59 GP Surgical assist at 35%+
60 GP Ob and Gyn at 35%+
65 Gerontology GP 45% (Inc 00,22,27,52)

Other specialists

01 Dermatology
02 Neurology
44 Rheumatology
45 Clinical Immunology & Allergy
26 Procedural cardiologist
06 Ophthalmology
07 Otolaryngology
09 Neurosurgery
10 Orthopaedic Surgery
11 Plastic Surgery
12 Cardio and Thoracic Surgery
13 Urology
47 Vascular Surgery
48 Thoracic Surgery
08 General Surgery
22 General Surgery-GP at 50%+
19 Paediatric Cardiology
46 Medical Genetics
03 Psychiatry
04 Neuropsychiatry
18 Anaesthesia
16 Radiology
33 Nuclear Medicine
71 Interventional Radiology
17 Pathology
29 Medical Microbiology
21 Public Health
23 Occupational Medicine
20 Physical Medicine and Rehab

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