

The Compensation and Management of Interdisciplinary Primary Health Care Teams in Alberta

Analysis and Recommendations

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EXECUTIVE SUMMARY

Two reports were completed for the Innovative Compensation Branch of Alberta Health. The first report developed a conceptual framework for the analysis of compensation structures within interdisciplinary primary health care teams. The framework was derived from two lines of inquiry: (i) an analysis of scholarly literature on the topics of team effectiveness in primary health care, and team compensation and management structures; and (ii) an analysis of the organization of interdisciplinary primary health care teams in Canadian jurisdictions. The framework identifies four possible types of compensation structures, and an example of each is identified in Canada. It is concluded that no one type can serve as a panacea; the appropriateness of the compensation structure is context dependent.

The second report provides an analysis of the Alberta primary health care context specifically, with focus on the political/ public debate surrounding interdisciplinary primary health care teams, the goals of competing models, the current approach, and the profile of the population and its health. Two main competing paradigms are identified: (i) the medical physician led multidisciplinary primary health care team; and (ii) the interdisciplinary primary health care team led by a non-physician (at least not as a requirement). The organization of compensation and management can be designed to support these goals. To improve the effectiveness of team functioning, we recommend:

Compensation methods and contracting

- The clinic receives a capitation payment that is dependent on the number of patients on the official roster;
- The clinic has the option of earning pay-for-performance bonuses on the basis of achieving population level targets;
- The clinic has guidelines with respect to the number of health care professionals to hire on the basis of patient numbers and patient population health profile;
- All providers receive a salary;
- The employment contract clearly stipulates roles and responsibilities;
- All providers receive a bonus payment that is proportionate to the revenues of the clinic (which depend on patient numbers and achievement of population level targets);

Supporting features

- Patients are required to formally enrol with the primary health care clinic.
- A standardized data collection system is developed and used in all clinics.
- Clinics are required to update their business plans on a regular basis.

Team process and structure

- Each team jointly formulate goal statements, and supporting objectives, including measurable indicators.
- Each clinic develop clear definitions of roles and expectations from all team members.
- Each clinic explicate processes and policies to guide collaboration (e.g. number and frequency of meetings), care planning, decision making and dispute resolution.
- Alberta Health specify the desired ratios of physicians to other providers based on similar practices in other jurisdictions.

Team composition

- To support team interdisciplinarity, Alberta Health specify the number of each type of health care professional per patient population.
- Team members include the following health professionals: primary care physician, physician assistant or nurse practitioner, nurses (registered, licensed practical), pharmacists, and other professionals as dictated by the needs of the patient population, such as dietitians or mental health professionals.

Evaluation

- An evaluation plan be developed as soon as possible, and include a comprehensive set of survey tools for patients, providers, and whole clinics, based on validated tools.
- The evaluation should measure each concept at baseline, and then again after a three to five year period.
- Indicators should be tracked (at baseline and after 3-5 years) for all types of Primary Health Care (PHC) teams and standard solo practices in Alberta.

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1. INTRODUCTION – BACKGROUND TO THIS REPORT

This report is the second in a series of two reports resulting from a study commissioned by Alberta Health. The purpose of the study is to support the development of interdisciplinary team based delivery of primary health care in the province of Alberta. In particular, the Ministry is interested in all aspects of compensation within a team of multidisciplinary health care providers, such as physicians, nurses, nurse practitioners, dieticians and/or pharmacists. Furthermore, related matters of managerial governance and contractual relations between organizations and providers are of interest. The focus of the study is on the options for reimbursement that can be used to support a patient-centred team-based service delivery model. The initial main research questions identified by the client were as follows.

- a. What is the optimal methodology for the remuneration of team-based primary health care delivery to support the achievement of primary health care goals?
- b. Which compensation methods best support interdisciplinary team-based primary health care that is associated with improved health services delivery.
- c. What are some examples of successful team-based primary health care delivery and the compensation methods associated with them (both in Canada and internationally)?
- d. What lessons can be learned and recommendations made that are applicable to the Province of Alberta?

The participatory approach to the research allowed the research team and the Ministry to jointly shape further questions in the course of the study. These included:

- e. What models of managerial governance and contractual relations between organizations and providers will best support the goals of interdisciplinary team based primary health care delivery?
- f. What are the broad evaluation issues that should be planned for during the implementation phases of any new compensation or managerial governance models?

The study is divided into two parts, of which this is the second. The first report provided an analysis of scholarly literature on the topic of primary health care teams, team effectiveness and compensation options. The first report also provided an environmental scan of interdisciplinary models of primary health care delivery in Canada, and a derived conceptual framework.

Using the first report as its foundation, the second report provides an analysis of team based primary health care delivery in Alberta as it is currently exercised. Methods used in

the second report are a mix of the following: (i) review of documents specific to the topics of Alberta health care services and population health in Alberta; (ii) analysis of individual PCN websites and the report of the Auditor General; (iii) analysis of a survey questionnaire sent to all PCNs in Alberta by the authors, and (iv) a media scan to assess current political contentions surrounding primary health care delivery in Alberta. The status quo is contrasted with other potential approaches, where the contrast is highlighted in terms of goals pursued, and if known, management approaches taken and financial structures used. Recommendations are offered for the improvement of team based primary health care delivery, adapted to the specific goals.

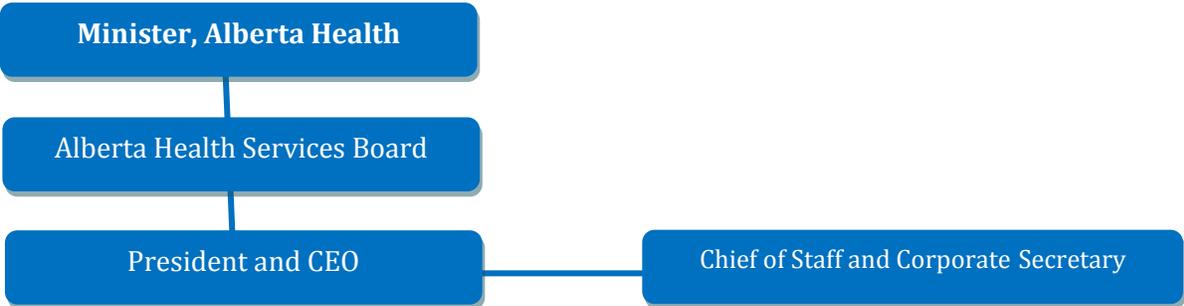
2. ALBERTA CONTEXT: WHERE ARE WE NOW

2.1. Governance of health care services

The governance structure of primary health care services in Alberta is as follows. Primary health care policy in Alberta is the purview of the Alberta Ministry of Health. This includes, but is not limited to policy with respect to funding allocations to specific health care sectors, and policy around the management and compensation of health care providers. Most of the delivery of health care is carried out through Alberta Health Services, whose five-part, legislated mandate is: (i) to protect and promote population health while aiming to prevent injury and disease; (ii) to assess the health needs in Alberta; (iii) to prioritize health services and allocate resources based on priorities; (iv) to ensure Albertan’s access to health care; and (v) to promote responsive and integrated health service delivery (Alberta Health Services, 2010).

The governance structure was changed in 2008 from a fairly decentralized to a fairly centralized model of decision making. Prior to reorganization, Alberta health care was delivered through nine regional health authorities, a mental health board, a cancer board, a drug and alcohol abuse commission, and municipalities. In 2008 these authorities, boards, and commission were amalgamated into Alberta Health Services to overcome high administrative costs and bureaucratic barriers (Calgary Herald, 2008; Canadian Press, 2008; Edmonton Journal, 2008). Alberta Health Services tailors their health care delivery around the needs of five geographic zones: North Zone, Edmonton Zone, Central Zone, Calgary Zone, and South Zone. Alberta Health Services is the largest employer in the province, directly employing over 82,000 Albertans. Alberta Health Services reports to the Minister of Health and is governed by a 12-member board of directors. (Alberta Health Services, 2012) The current governance structure of Alberta Health Services is shown in figure 1.

Figure 1 – Governance structure of Alberta Health Services



2.2. Profile of primary health care providers

As of December 31, 2010, Alberta was home to 7,882 physicians, of which 4,065 were family physicians and 3817 were specialist physicians. This means that Albertans enjoy a higher physician and primary physician to population ratio than does the average Canadian. Alberta's physician to population ratio was 211 to 100,000 population, compared to the Canadian average of 203 to 100,000 population. Alberta's primary care physician to population ratio was 109 to 100,000 population, compared to the Canadian average of 103 to 100,000 population. (CIHI, 2010)

As of 2010 the total ratio of regulated nurses (registered and licensed practical nurses) to population was lower in Alberta than the national average in Canada. Alberta's registered nurse per 100,000 population was 771, licensed practical nurse per 100,000 population was 196; less than the national averages of 787 and 238, respectively. However, in looking at the number of regulated nurses that, as of 2010, worked directly in patient care and not education or administration, a different picture emerges. Alberta's 698 registered nurses per 100,000 population was higher than the Canadian total of 686. The number of licensed practical nurses still remained behind the Canadian average of 231 per 100,000, with 192 per 100,000. Finally, Alberta had the second highest number of nurse practitioners in Canada, 263, or 8 per 100,000 population; Ontario had the most nurse practitioners at 1482, or 12 per 100,000 population. (CIHI, 2012)

2.3. Primary Care Networks

The system of managerial governance of primary health care in Alberta has also undergone substantial changes in the past decade. In an attempt to streamline and localize the delivery of health care services, the Province introduced a system of Primary Care Networks. These are one outcome of the Primary Care Initiative that was funded by the federal Primary Health Care Transition Fund announced in 2000. The Primary Care Networks were jointly run through a trilateral agreement between Alberta Health, the Alberta Medical Association, and Alberta Health Services (formerly the regional health authorities) until the 8 year contract expired in April 2011. Since the contract expiry, the oversight of PCN program is the purview of Alberta Health, with the support and input from an Interim Advisory Committee comprised of the original three signatories. (Auditor General, 2012)

Primary Care Networks are designed to streamline primary health care services to Albertans by moving away from a professionally siloed fragmented model, often found in Canada, (Romanow, 2002) towards a more integrated form of primary health care delivery. Through the coordination of family physicians, organized by central network administration teams, PCNs aim to achieve more timely referrals and quicker access to

primary health care services. By forming a network, rather than acting in isolation, it is thought that the participating physicians and clinics are able to provide more health services and programs that respond to the specific needs of the community. The increased funding allotted to PCNs allows for resource sharing among physicians and therefore increases the ability to work with other providers.

The first Primary Care Network, Edmonton Southside, opened its doors in 2005 (Primary Care Initiative, 2010; Primary Care Initiative, 2012). Currently, there are 40 PCNs in operation throughout Alberta. The 2500 physicians, and 600 FTE health care providers working in PCNs provide primary health care services to over 2.5 million Albertans. (Primary Care Initiative, 2012; Auditor General, 2012) A comparative analysis of the websites of individual PCNs (Primary Care Initiative, 2011) revealed the following similarities and differences between PCNs. Each PCN is administered by a central administration office. The office can be located within a participating clinic, but it may be housed in a separate location. A typical PCN includes physician sole practices and group clinics. There is no minimum or maximum number of provider units that comprise one PCN. 19 PCNs (47.5%) have less than 10 clinics and/or physician sole practices within the network, 11 PCNs (27.5%) have between 10 and 20 clinics and/or physician sole practices within the network, and 10 PCNs (25%) have more than 20 clinics and/or physician sole practices within the network. (Primary Care Initiative, 2011) Some PCNs are quite large, such as the Calgary Foothills and Calgary West PCNs, with 79 and 94 clinics, respectively. The administration of the networks also varies across organizations, however the composition of this team is commonly an executive director, administrative assistant(s), referral and program coordinators, and in many instances, PCNs employ personnel for evaluative functions. Based on information from 26 PCNs, the average size of the administrative staff team is 5.

Over 2500 of Alberta's 4065 family physicians work within a PCN (Primary Care Initiative, 2012; CIHI, 2010). The number of physicians that practice within a PCN is positively related to the number of clinics within a PCN. The largest PCNs, Calgary Foothills and Calgary West, have over 250 physicians, while the smaller, single clinic PCNs have an average of 10 physicians. The average number of physicians within a PCN is 55 (Primary Care Initiative, 2011).

The multidisciplinary of the PCNs is often exercised throughout an entire PCN, not necessarily within each individual clinic; a PCN is most commonly comprised of physicians, nurses (licensed, registered, and practitioners), dietitians, pharmacists, and mental health workers (Individual PCN websites). Non-physician health care providers are typically employed by the PCN itself, and deliver care throughout the PCN's clinics. As of 2011, there were 597 non-physician health care providers practicing within the PCNs; a more detailed

breakdown of the types of providers comprising the 597 FTE personnel is not available as most PCNs do not list this information publicly. The 597 FTE personnel practicing within PCNs constitute a small portion of the total number non-physician health care providers in the province. As of 2010, there were 25,981 registered nurses and 7,132 licensed practical nurses working in direct patient care, in Alberta. (CIHI, 2012) As of 2010 there were also 263 nurse practitioners and 3,837 pharmacists in Alberta (CIHI, 2012; CIHI, 2011). As of 2009, there were 973 registered dieticians in Alberta (CIHI, 2012). The number of FTE non-physician health care providers within each PCN ranges from 0.4 in the Kalyna PCN to 69 in the Chinook PCN. The average number of FTE non-physician providers practicing in PCNs is 17.5. The non-physician health care provider to physician ratio ranges from 0.06:1 (Northwest PCN) to 0.71:1 (Chinook PCN); the average ratio of non-physician to physician providers practicing within a PCN is 0.3:1. (Auditor General, 2012) See Table I.

Table I – Within each Primary Care Network

	Number of Clinics	Physicians	Other health care providers (FTE)
Average	16	55	17
Upper	94	273	69
Lower	1	2	0.4

See Appendix 1 for a detailed listing of each PCN.

2.4. Primary Care Networks: Survey

As a part of this project and to supplement the information available through the PCN websites and the Auditor General’s Report, we distributed a survey to all current PCNs in Alberta (Appendix 2). The faxed survey asked for information regarding the composition of providers, compensation method used for each provider, and collaborative activities of each PCN; a follow up telephone call was made to each PCN.¹ The response rate was 10%, in other words only four of the forty PCNs responded; one of the four was incomplete, as it did not disclose information regarding the PCN’s physicians. The PCNs that responded are all midsize; one has a patient population between 20,000 and 30,000, another has a patient population between 30,000 and 40,000, and two have patient populations between 70,000 and 90,000. None of the respondents were particularly remote, or rural, and none were in a downtown core. The sample is too small to draw general conclusions about all PCN’s in Alberta. Information provided here should be treated similarly to a case study in that it highlights some aspects of the PCN landscape.

From the three PCNs that provided information about physician compensation it was found that 160 of 162 (98.7%) physicians are remunerated through a Fee-For-Service (FFS)

¹ Some of the information provided by survey respondents is contrary to the recent Auditor General’s report. A possible explanation for this could be that the AG used information from 2011 annual reports.

arrangement and 2 of 162 (1.3%) of these physicians are remunerated through an Alternative Relationship Plan (ARP). Survey respondents reported that 128 of the 160 FFS physicians (80%) have a direct contractual relationship with Alberta Health or Alberta Health Care Insurance Plan, while 32 of the 160 FFS physicians (20%) have a contractual relationship with their clinic or network. The funding for ARP physicians is from the PCN itself. The average number of physicians per PCN, from our survey results is 44, which is less than the PCN-wide average of 62. All PCNs that reported information regarding the PCN physician reported having physician leads; 2 PCNs have one physician lead, and 1 PCN has two physician leads. Three of the physician leads are remunerated through FFS, and one physician lead is remunerated through a service contract with the PCN.

Table II - Arrangements with physicians and nurses

	Number Per PCN (average)	FFS	ARP	Salary	Hourly	Service contract	Contract with AH	Contract with PCN
Family Physicians	44	160	2				128	34
Registered nurses	22	-	-	70	6	10	-	86
Licensed practical nurses	3	-	-	5	2	5	-	12
Administrative Staff	5			14	5	1	1 (AHS)	19

All PCNs surveyed employed registered nurses (RNs) and licensed practical nurses (LPNs). The average number of RNs in each PCN surveyed is 22. 70 of 86 (81%) RNs are salaried, 6 of 86 (7%) are paid hourly, and 10 of 86 (12%) are compensated through a service contract; all funding and contracts are held directly between the RN and the PCN. The average number of LPNs in each PCN surveyed is 3. Of these, 5 of 12 (42%) are salaried, 2 of 12 (16%) are paid hourly, and 5 of 12 (42%) are compensated through a service contract; all funding and contracts are held directly between the LPN and the PCN. Beyond physicians, RNs, and LPNs, the interdisciplinarity of the PCNs vary. 75% of PCNs surveyed employed a pharmacist and a registered dietician, other health care provider positions are counsellor, physical therapist, and a lactation consultant. The total number of non-physician health care providers ranges from 13 to 67, with an average of 30. The ratio of non-physician health care providers to physicians in our sample ranges from 0.38:1 to 0.96:1, with an average of 0.55:1.²

The PCNs that responded all reported network administration staff; all have an executive director, 75% employ an administrative assistant, 50% employ clinic or PCN managers, and 50% employ referral coordinators. Other network administration positions employed by

² As noted above, one PCN did not report any information regarding their physicians. Physician information from the Auditor's report was used to supplement their survey data.

the PCNs surveyed are evaluation consultants, a communication consultant, a finance clerk, a clinical supervisor, a facilitator, and a human resource manager. The ratio of network administrative staff to health care providers (both physician and non-physician) ranges from .04:1 to .11:1; the average is .07:1.³ All network administration staff are compensated by the PCN directly.

Respondents were asked about the collaborative activities within the PCN. The PCNs spend between 45 minutes to 20 hours per week, in informal and formal collaboration. The types of formal and informal collaborative activities reported were wide ranging, from treatment plans and patient triaging, to online discussion boards and staff meetings. Respondents were asked how such collaborative activities were compensated; however the answers given were incomplete and as such, a comparison among the responding PCNs is not possible. Based on the information provided, it is the assumption of the authors that there is no additional compensation for collaborative activities offered to salaried employees such as nurses or administrators, but that the physicians are additionally compensated for collaborative activities.

2.5. Family Care Clinics: Current Climate

Issue-specific media scans were conducted in order to assess the current public discourse surrounding physician compensation and primary health care teams in Alberta. The scan demonstrated that there have been points of contention in recent months surrounding the expansion of Family Care Clinics (FCC) that were introduced in 2012 by Alberta Health on a pilot basis.

FCCs offer an alternate form of organizing multidisciplinary primary care services. The similarities and differences between an FCC and a PCN are highlighted in a later section of this report. A key difference is that while PCNs are physician-owned organizations, the ownership of a FCC can be non-physician. On April 2, 2012, Premier Redford announced her Government's plan to have 140 FCC sites operational in three years; there are currently 3 FCC pilot sites in Edmonton, Calgary, and Slave Lake. The aim of the FCCs is to be patient-focused, providing rapid access to appropriate health care providers, from dieticians to addiction counselors, in one location. FCCs will also co-locate with select social services, and be organized to meet the needs of the communities they serve. Concerns were raised from the Alberta Medical Association, Primary Care Alliance (PCA), and some Primary Care Network (PCN) personnel regarding the expansion of the FCC initiative. Specifically, the risk of competition with existing PCN sites, an overlap in primary health care services

³ This excludes medical office assistants, as they are neither health care providers nor network administration staff.

provided, a lack of long term evaluation of the current FCC pilot sites, and the role of the family physician in the FCC model.

In July 2012 the Alberta Medical Association publicly released their discussion paper *A Vision for Family Care Clinics* which lays out an FCC model that they would support. (AMA, 2012) The FCCs are to provide multiple points of access for patients to a primary health care team, relying less on the family physician as first point of contact; in *A Vision for Family Care Clinics*, the AMA supports this, but believes each patient should still be attached to a family physician within the FCC. The paper also notes that “clinical leadership would continue to be provided by a family physician who, as team ‘coach,’ remains the most responsible provider with the broadest scope of clinical practice.” (pg. 10) The AMA’s proposal envisions future FCCs to be managed within existing PCNs. Furthermore, the AMA’s discussion paper strongly supports advancements in team-based primary health care, and the co-location of allied health professionals, and cites a lack of PCN funding as the reason such team development and co-location has not more prevalent in PCNs thus far. However, the issue of funding is contentious, as a recent Auditor General report noted that many PCNs have had large surpluses, and cautions all parties that the recent per capita increase (from \$50 to \$62) may contribute to this, and that more direction is needed for PCN surplus reduction plans.

3. CURRENT POPULATION HEALTH CONTEXT

Alberta has had the highest provincial growth rate in Canada in recent years, 10.8% between 2006 and 2011. Alberta’s population is now 3.7 million, which accounts for 11% of the Canadian population. (Statistics Canada, 2012; Statistics Canada, 2011) 82% of Alberta’s population lives in urban settings, while 18% live in rural areas. (Statistics Canada, 2009)

The incidence of many chronic diseases is lower in Alberta than Canada-wide. The rate of cancer in Alberta is 399.9 per 100,000 population, which is the lowest rate of all Canadian provinces (CIHI, 2012). The incidence of all cancers in Canada is 406 per 100,000 population (Canadian Cancer Society, 2012). 5.4% of Albertans have diabetes, and 15.1% have high blood pressure, both incidences are lower than the nation-wide 6.4% and 17.1%, respectively. 3.4% of Albertans suffer from chronic obstructive pulmonary disease, whereas 4.3% of Canadians suffer from the disease. The percentage Albertans who are overweight or obese (those with a BMI over 25) is 51.6%, less than the Canadian average of 52.3%. (CIHI, 2012)

Health issues where Alberta has a higher than national average is the incidence of asthma, and preventable deaths. The incidence of asthma is Canada is 8.5%, but 9.5% in Alberta.

Additionally, the mortality from preventable causes per 100,000 population is 131 in Alberta, and 120 nation-wide; mortality from treatable causes per 100,000 population is 67 in Alberta and 67 in Canada. (CIHI, 2012)

Table III – Incidence of Chronic Disease

	Asthma (%)	Cancer (per 100,000)	COPD (%)	Diabetes (%)	High Blood Pressure (%)	Overweight (%)
Alberta	9.5	399.8	3.4	5.4	15.1	51.6
Canada	8.5	406	4.3	6.4	17.1	52.3

Albertans seem to enjoy good health, as suggested by the relatively low rates of chronic diseases. Given the descriptive nature of the data, we are not able to conclude whether the primary health care system in Alberta is responsible for improved health of Albertans, or whether the high health status reduces the need for expanded primary health services. A better understanding of the nature of the relationship between health status and health services in Alberta would be useful in the design on future health policies.

Reporting on satisfaction with the health care they receive, 94% of Albertans would recommend their family physician to a friend, which is higher than the national rate of 92%. Only 72% of Albertans ranked the quality of health care received as very good or excellent, which is lower than the nation-wide 76%. (CIHI, 2009)

4. GOALS: WHERE WE ARE GOING

There are currently two models of team based primary health care delivery in Alberta: the 40 PCNs and the three FCC pilot sites. As outlined in Alberta Health Services 2011-2015 Health Plan, a move towards a third model, the Patient-Centred Medical Home (PCMH) is being considered. In this section, the similarities and differences of the aims of these delivery models are highlighted. (See Appendix 4 for full lists) Descriptions of the three models use different terminology to express their aims (“goals,” “objectives,” “intentions”); for purposes of this analysis, we categorized statements thematically by content.

All information in this section is based on documentation from the College of Family Physicians of Canada (A vision for Canada: Family practice, the patient’s medical home, 2011), the Primary Care Initiative (About the Primary Care Initiative, 2012), and Alberta Health (Family Care Clinic pilot objectives and performance measures, *internal document*, 2012).

The health care delivery models can be contrasted along the following four dimensions: (i) the leading health care provider; (ii) the access to, or availability of, health care services;

(iii) primary health care services; and (iv) administrative and organizational support systems. (Table IV, V, VI, and VII)

4.1 Leading health care provider

The leading health care provider is the principal difference between the models. The PCMH model is, by definition, physician-led. Within the PCMH model, greater patient access to primary health care services is synonymous with greater patient access to family physicians. Similarly, the PCN model is also physician-led. While PCN goals do not explicitly emphasize the role of the physician, the legal frameworks on which PCNs are developed require a group of individual physicians to form the non-profit corporation that then becomes the PCN. In contrast, the FCC model does not necessitate physician participation for access to primary health care services that are within the scope of practice of non-physician providers, nor does the FCC model require physician ownership (Redford, 2012). These three models support different degrees of integration. Language used in the PCN literature, as well as the PCMH suggests a multidisciplinary approach to care, whereas language used in the FCC literature suggests an interdisciplinary approach. See next section, *Degrees of team integration*, for a detailed distinction between a multidisciplinary and interdisciplinary approach.

Table IV – Leading Health Care Provider

Model	Goal
PCMH	Every patient is attached to a physician; the physician is the most responsible provider (MRP) of patient care.
	Primary health care services delivered by teams and networks, including the primary physician, who works with “peer physicians, nurses, and others”
PCN	Primary health care services delivered by multidisciplinary teams
FCC	Primary health care services delivered by interdisciplinary teams, collaborating and working to full scope of practice

4.2 Access to health care services

The three models are similar in their approach to access to, or availability of, health care services. The PCMH, PCN, and FCC models promote timeliness for both general appointments and for coordination with external health services. Similar to the PCMH, the FCC model also advocates timeliness in appointment scheduling. While the stated goals of the PCMH do not make any reference to general access to primary health care, both the PCN and FCC model do. Furthermore, the PCN and FCC models both list extended hours as goals while the PCMH model does not. Only the PCN explicitly aims to expand services to a larger number of patients, the FCC is not specific as to the desired recipients of increased access, whereas the PCMH aims to improve services to existing patients, not expand

services to new patients. This might be attributed to the PCN and FCC being unique Canadian models, whereas the PCMH is an approach also used elsewhere, for instance in the U.S.

Table V – Access to Health Care Services

Model	Goal
PCMH	Timely access to in-practice appointments and timely coordination of appointments with other health services
	Increasing the number of Albertans with access to primary care services
PCN	Coordination with other health care services
	Manage 24/7 access to primary health care
FCC	Increase access and manage 24/7 access to primary health care
	Coordination, continuity and integration with other health care services

4.3 Primary health care services

The types of health care services on which the delivery is to focus are similar in all three models. These include continuity of care, health promotion, chronic disease management, and injury and disease prevention. Both the PCMH and the FCC models specify population and public health needs, suggesting a broader vision of primary health care services provided by each practice. The PCMH and FCC models also commit themselves to evaluative activities in regard to health services.

Table VI – Primary Health Care Services

Model	Goal
	Comprehensive scope of family practice that also meets population and public health needs
PCMH	Continuity of care, relationships, and information for patients
	Ongoing evaluation to measure effectiveness and quality; commitment to continuous quality improvement (CQI)
PCN	Emphasis on health promotion, disease and injury prevention, complex needs, and chronic disease management
	Comprehensive, quality, health care services across the lifespan, based on population health needs; screening, chronic disease management and complex needs;
FCC	Emphasis on health promotion, disease and injury prevention, and self-management
	Ongoing evaluation to measure effectiveness and quality

4.4 Administrative and organizational support systems

Each model of health care delivery outlines a plan for systems of administration and organization to best support clinical activities. The PCMH model envisions family practices to house both training and research activities. Additionally, the PCMH makes reference to the autonomy of family practice, through internal governance and management decisions. The PCN model does not outline any systems performance specifications in their stated intentions, however there are specifications in the PCI manual. The PCMH and the FCC model both highlight the importance of an EMR and IT infrastructure.

Table VII – Administrative and organizational support systems

Model	Goal
PCMH	Use and maintain electronic medical records
	Act as a training site for medical students, residents, and those in other health professions; support primary care research
FCC	Supported through internal governance and management defined by each practice; supported by all external stakeholders (government, the public, and health professions)
FCC	Use and maintain efficient information systems

5. DEGREES OF TEAM INTEGRATION

The team based approach is believed to improve primary care for patients, particularly those with complex and chronic care needs (Wranik, 2008). A group of professionals, however, does not necessarily constitute a well functioning team (Hills et al., 2007). The goal in primary health care is to create teams that collaborate around patient needs.

“It is naïve to bring together a highly diverse group of people and expect that, by calling them a team, they will in fact behave as a team”. (Rubin and Beckhard, 1971)

The literature recognizes that the extent of collaboration varies between teams. The terminology used in the literature, however, is not consistent (Xyrichis and Lowton, 2008). We have developed a simple framework for the purposes of this report that allows us to speak of different degrees of collaboration, and we call it the *Integration Spectrum*. The aim is to bring together the conceptual discussion within the literature under a common language umbrella. The nomenclature we chose does not necessarily correspond to the terminology used by all authors, given that there is a lack of consistency in the literature.

The conceptual literature makes a distinction between (i) the multidisciplinary team, and (ii) the interdisciplinary team. The interdisciplinary team is characterized by a higher degree of integration and collaboration than the multidisciplinary team. (Solheim et al., 2007) This terminology is not used consistently; some authors refer to “collaborative multidisciplinary teams” or “multidisciplinary integrated teams,” seemingly interchangeably with “interdisciplinary teams.” Furthermore, the term “collaboration” is vaguely defined and is often used inappropriately. (Murray et al., 2008, Xyrichis and Lawton, 2008) In many empirical studies, the distinction is not made at all.

The integration spectrum is a simple framework highlighting that team integration can be thought of along a continuum. At the extreme left hand side of the spectrum is the **non-collaborative team**, in which each team member practices within their own discipline and in a silo. An example would be a shared office space between several providers, where the goal is to share resources and decrease overhead costs, but no discussion of individual patients takes place. Next is the **multidisciplinary team with low levels of collaboration**. An example would be an office where the general practitioner employs a nurse. These two professionals work together as a team, but all decision making rests with one provider. **The collaborative multidisciplinary team** uses the skills and experiences of professionals from different disciplines with each approaching the patient from a different perspective. Professionals work in parallel or sequentially on different aspects of care, but each remain within their specific discipline. Joint deliberation and joint decision making are limited to discussion and case conferencing. (Jessup, 2007; Collin, 2009; Mitchell, 2005; Opie, 1997). The **interdisciplinary collaborative team** more heavily relies on joint deliberation and joint decision making, and includes the sharing of care, when appropriate. The **fully integrated team** is the right hand side extreme of the integration spectrum and requires an integration of the philosophies of different professions within the team, and the abolition of professional boundaries.

The Integration Spectrum



Interdisciplinarity involves the harmonization of care into a whole. Interdisciplinarity refers to the collaborative and joint efforts of several health care professionals from a variety of disciplines with the aim of optimizing care for individual patients. Jansen (2008)

defines interdisciplinary teams as “...partnerships between two or more health professionals who collaborate to achieve shared decision making according to client centred goals and values, optimization of the composite team’s knowledge, skills and perspectives, as well as mutual respect and trust among all team members.” (Jansen, 2008)

Interdisciplinarity requires that each health professional be flexible in their approach to health, and open and adaptable to the approaches of others (Collin, 2009, Jessup, 2007, Mitchell, 2005). Joint intellectual planning of work and knowledge sharing, as well as non-hierarchical decision making are key elements of interdisciplinarity (Jansen, 2008). Jessup (2007) suggests that interdisciplinary team approaches integrate separate disciplines into a single consultation. That is, the patient-history taking, assessment, diagnosis, intervention, and short term and long term management goals are conducted by the team, together with the patient, at the one time. (Jessup, 2007) It is also key that each health professional perceives that their approach and opinion are valued equally to those of other team members. Traditional hierarchies, and in particular medical dominance, and dominant personality types are found to interfere with the process. (Griffiths, 2004, Jessup, 2007, Xyrichis & Lowton, 2008).

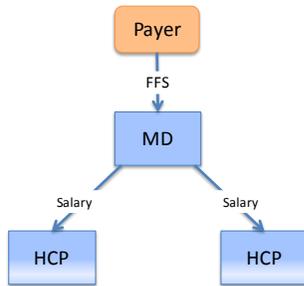
Integrated team approaches are advocated as desirable, due to creating better coordination and continuity of care, avoiding service gaps and service duplication, and resulting in generally better outcomes. There is evidence that a more integrated team approach has better results for nearly all aspects of teamwork and team effectiveness in comparison with the less integrated team approach (Farris et al., 2004, Grumbach and Bodenheimer, 2004, Hills, et al., 2007, Hogg et al., 2009, Khan et al., 2008, Korner, 2010, Russel et al., 2009), although a paucity of evidence is mentioned (Hills et al., 2007). There are no head-to-head studies comparing a group of low-integration teams with a group of high-integration teams along important health services outputs or patient health outcomes.

The degree of integration varies between teams due to several obstacles that have been discussed in the literature. A key challenge is the existence of a hierarchy within the health care professions, in which the medical doctor plays the dominant role. This traditional hierarchy has been termed “medical dominance”, “physician driven care”, and “medical supremacy”. Many authors suggest that the traditional hierarchy stands in the way of increased team integration. (Beckhard, 1972, Hills et al., 2007, Howard et al., 2011, Lenihan and Sliffe, 2001, Pearson et al., 2006, Shaw et al., 2005) The need to mitigate the traditional hierarchy is recognized by policy makers, as well. For example, the community-based Primary Health Organizations in New Zealand are required to demonstrate that all of their providers and practitioners can influence the organization’s decision making, rather than one group being dominant. (Crampton et al., 2004)

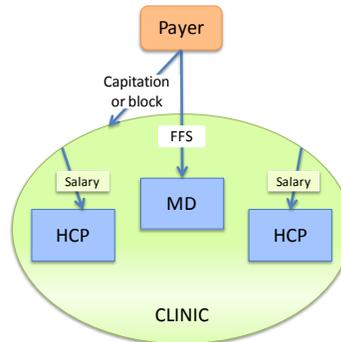
6. TYPES OF COMPENSATION AND CONTRACTING

In the first report, we developed a four model typology of potential compensation and managerial governance types in team based primary health care. These included:

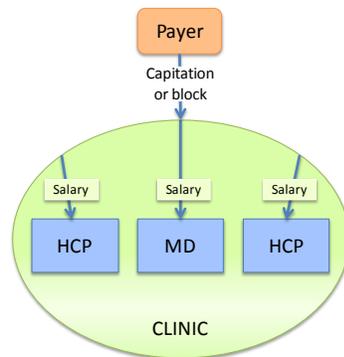
Model 1
Physician as the clinic



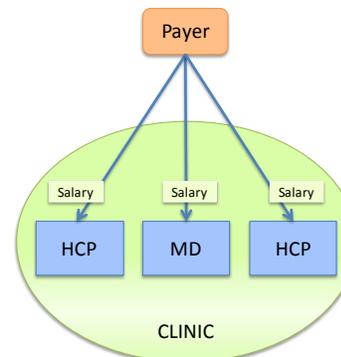
Model 2
Physician as separate from the clinic



Model 3
Physician integrated into the clinic



Model 4
Physician equivalent to other health professionals



The ***Physician as the Clinic*** is the standard solo or partnered practice that is owned by the physician and employs health professionals. The physician bills the payer on a fee-for-service basis, and enters into an employment contract with others. In principle, physicians might also receive other forms of payment; the key features are physician ownership, revenue generation being dependent solely on the physician's activities, and other professionals being paid from those revenues. Examples can be found in Ontario and in Nova Scotia.

The ***Physician as Separate from the Clinic*** describes a situation, where the physician and the clinic are paid independently of one another, and both directly by the payer. The clinic as an entity employs other professionals, but does not have an employment contract with the physician. The physician most often bills on a fee-for-service basis, whereas the clinic most often receives a lump sum payment per time period. The clinic's payment can be based on actually enrolled patients (capitation), or a geographical catchment area (block). Examples can be found in Ontario, Alberta, Manitoba, and the United Kingdom.

The ***Physician Integrated into the Clinic*** describes a situation, where the clinic is remunerated directly by the payer, whereas all providers, including the physician, are in a contractual relationship with the clinic. The clinic receives capitation or block payments based on real or virtual patient numbers. The health care providers receive a salary in exchange for the fulfillment of the employment contract. Examples can be found in Ontario, British Columbia, and New Zealand.

Finally, the ***Physician Equivalent to other Health Professionals*** is a model where all health providers, including the physician, contract directly with the payer. The most likely form of remuneration is a salary in exchange for the fulfillment of the employment contract. The clinic becomes a forum for shared care and shared decision making, but does not as an entity receive payments from the payer. Examples can be found in Prince Edward Island, Manitoba, British Columbia and Newfoundland.

7. TEAM INTEGRATION, COMPENSATION AND CONTRACTING

Bringing together the typology of compensation and governance structures, with the integration spectrum allows us to analyse what kind of compensation/governance models best support various degrees of team collaboration and integration.

The simple conceptual relationship is that team integration is least likely in teams characterized by hierarchies. In order to support integration, it is best to choose compensation models that counteract hierarchical structures. We refer here to professional hierarchies in clinical decision making, the absence of which does not preclude hierarchies in the management of organizations.

The ***Physician as the clinic*** model does not support team integration. Financially, the model centres on the activities of the physician. All other team members work to support the activities of the physician, who is the clinical decision maker. The contractual arrangement, where other health care providers are employees of the physician, further cements the hierarchy, where the physician is the dominant team member.

The ***Physician as Separate from the Clinic*** model offers a financial structure that does not support the cultural professional hierarchy, but also does not counteract it. The physician takes a special role within the clinic and has no incentive to collaborate with others. Their income depends on their own activities; in fact, if the physician receives the fee-for-service payment, their income is proportionate to the level of activity. Delegation of activities to other health professionals occurs, when activities are not remunerated, or have a relatively low billable fee. Delegation and collaboration does not occur on the basis of patient needs, or the identification of best provider for each task. In this model, the physician remains a clinical decision maker with no financial or contractual incentive to share decision making.

The ***Physician Integrated into the Clinic*** model counteracts a professional hierarchy by creating a uniform set of incentives for all team members. Neither the physician, nor any other health professional is singled out as different from the rest of the team (by compensation method). In addition, the incomes of all health professionals are tied to the clinic's budget, thereby creating pressure for everyone to sustain the budget. If the budget is based on a patient roster capitation system, then it is in everyone's interest to maintain high patient volumes. A block allocation (based on e.g. a geographical catchment area capitation) removes the motivation to contribute to patient volumes.

The ***Physician Equivalent to other Health Professionals*** model also counteracts the professional hierarchy and medical dominance culture. A difference between this and the previous model is that this model offers more stability in income. The salary rate is not dependent on the clinic's budget. The absence of pressure to sustain the clinic's budget is not necessarily positive, in that the incentive for patient volumes is removed entirely. The Canadian Forces Primary Care Clinic, as an example, uses this model. A concern that was voiced during an interview is that patient volumes tend to be low, and wait lists for primary care visits are higher than might be desirable.

The four models discussed are part of a simplified typology. Variations exist within each model-type. A key finding of the literature on physician incentives is that blended payment methods are typically better than pure methods in the achievement of goals (Wranik et al., 2011). Blended methods combine the positive features of pure methods, while counteracting the negative features. For instance, a salary payment does not create an incentive for productivity or patient volume. Blending a salary with a fee-for-service component adds the service volume motivation.

The literature on team remuneration is not as developed as that on the compensation of physicians. It would appear, however, that the blending of incentives would have a similar effect in team settings as in individual provider settings. The added layer is the method of compensation of the team as a whole, of individual team members, the relationship

between the team level and the individual level payment approaches, and the contractual relationships between the team members and the clinic.

7.1 Incentive effects of the current PCN compensation structure

The current incentive structure for most PCNs is as follows. The PCN as an organization receives capitation funding that is based on patient panels, the sum of the patient panels of individual physicians.⁴ There is lack of clarity surrounding the determination of each panel, but it is clear that the panel is associated with individual physicians.⁵ Effectively, a greater number of physician-members results in a larger total patient panel associated with the PCN, and therefore a higher capitation funding for the PCN. The PCN as an organization, therefore, has the incentive to recruit as many physicians as possible. There is no evidence as to the optimal size of an organization like the PCN. However, standard economic theory does suggest that an expansion in operations beyond a threshold results in diseconomies of scale. In terms of the PCN, the organization can become too large to continue offering efficient care to individual patients, because the costs of administration and coordination of entities increase on a per unit basis. It follows that research is needed to establish the optimal size of a PCN, and an associated regulation should follow. Creating an incentive system to expand in size without limitation is not optimal.⁶

Many physicians who join or joined a PCN are, or were, practicing in a solo fee-for-service practice. The motivation to join a PCN, as summarized on the fact sheet for physicians is that the practice requirements of the physician will not change, but benefits can be reaped.⁷ The benefits to the physician come in the form of administrative support, and the benefits to the physician's patients come in the form of being part of a well integrated network of health professionals, including non-physician providers and specialist physicians. The physician can offer the patient more variety in care, better coordination and improved comprehensiveness at no additional cost to the physician. The physician is able to continue billing the fee-for-services that she has been billing all along. This creates an incentive for

⁴ In addition to the capitation funding Primary Care Networks receive, grants such as the Specialist Linkages Fund and the Pharmacy Pilot Project Fund are also available through the Primary Care Initiative.

⁵ The Auditor General states: "PCN responsibility for increasing access to primary healthcare is unclear because neither PCNs nor AHS know which patients are assigned to each PCN. The department assigns patients to PCNs, but does not inform PCNs or AHS who it has assigned to their patient panels. PCNs and AHS can request information on individual PCN physician patient panels, but we saw few instances where this has happened. The department also does not define service or catchment areas that PCNs are responsible for. AHS zones are divided into geographic areas, while physician patient lists are based on the historical pattern of patient visits to those physicians. In rural areas of the province, a single PCN may include most physicians and patients in a given geographic area. However, over two thirds of Albertans live in and around urban centres, and may not see a family physician in the same area they live in. As a result, the nine PCNs in Edmonton and seven PCNs in Calgary do not know whether patients they provide services to are assigned to their PCN or not."

⁶ Page 3 of the PCI manual states: "Primary Care Networks may have an unlimited number of fee-for-service, alternate relationship plan and RHA physicians, other health care providers and service delivery locations. However, a Primary Care Network cannot be owned by another Primary Care Network or any other corporate entity." <http://www.albertapci.ca/Resources/guideandreference/Documents/27.PCIPolicyManualv10.1June2008.pdf>

⁷ Primary Care Initiative. 2012. <http://www.albertapci.ca/AboutPCNs/Documents/PhysicianFactSheetFINAL.pdf>.

the physician to delegate activities that are either not billable or not lucrative. The system does not, however, provide any incentive for the physician to fully engage in the interdisciplinarity of the team. The fee-for-service remuneration to the physician, particularly when carried over from her pre-PCN practice, gives no motivation to deliberate on and share the decision making regarding care plans for individual patients. This is not simply a matter of offering payment for time spent on collaborative activities. This is a matter of creating a system where the physician has a vested (financial) interest in the interdisciplinarity of care, the experience of the patient, and patient satisfaction.

Other health care providers working within PCNs most often receive salaries, hourly wages, or contract stipends. These are all fixed forms of payment that do not vary with the level of activity or the number of patients enrolled. In this sense, other health professionals do not have a financial incentive to increase the quantity of services, or to recruit or retain patients. The salary or contract remuneration is typically offered in the context of an employment contract, however. This allows the payer to stipulate roles and responsibilities of providers, including requirements of interdisciplinary collaboration. The option exists, we do not know how often it is exercised, since the employment agreements are between the health providers and PCNs. The agreements vary from one PCN to the next. A positive feature of this kind of arrangement is that it does not create a situation of dependence of one provider's income on another provider's activity. The latter can discourage interdisciplinarity, as discussed above.

An important goal or stated advantage of a PCN, or other forms of group based health care, is the improved ability to respond to patient needs. The ability of any health care organization to respond to patient needs is directly dependent on the ability to collect information about patients, to identify patient needs, and to have a clear process for the adjustment of practice in response to identified patient needs. It is not clear that current PCNs have processes in place to collect and analyze data, and to adjust practices accordingly. It can be argued, however, that a larger entity has a lower incentive to be responsive to clients than a smaller entity. Individual sole practicing physicians have a vested interest in ensuring that their patients' needs are met and patient return. When practicing as members of a larger organization, such as a PCN, the pressure is relieved to some extent, as one's own practice can be justified with typical practices within the PCN. The extent to which the latter effect exists is currently not observed.

8. RECOMMENDATIONS: HOW WE CAN GET THERE

The recommendations in this section are based on our typology of compensation methods coupled with the integration spectrum, our analysis of the goals of team based delivery of care, and the contextual information described above. The development of these

components was in part rooted in the literature on team structures and provider compensation, and in part on our own analysis. The main points are summed up in this section. The recommendations are the authors' expert conclusions and may not represent the views of Alberta Health, Alberta Health Services, or the Alberta Medical Association.

8.1 Compensation Methods and Contracting

Given the goal of interdisciplinarity and the need to mitigate the hierarchical culture of health professions, all providers within a team should receive the same type of compensation. This is not to suggest that everyone receive the same amount, but rather that every team member faces the same incentive structure. The incentive structure should be such that it supports interdisciplinary collaboration, care continuity and coordination, and comprehensive chronic and preventive care.

Team members cannot be employees of one another, but all need to have the same contractual relationship with the organization (clinic) or the payer (government). The clinic's revenues cannot be independently affected by the physician's activities. The clinic should gain revenues on the basis of patient numbers, provider numbers or both.

Recommendations: The remuneration system

The following are our recommendations for the remuneration of physician and other health care providers within teams, where the goal is to support interdisciplinary care, as discussed above. Below is a discussion of each component.

- The clinic receives a capitation payment that is dependent on the number of patients on the official roster;
- The clinic has the option of earning pay-for-performance bonuses on the basis of achieving population level targets;
- The clinic has guidelines with respect to the number of health care professionals to hire on the basis of patient numbers and patient population health profile;
- All providers receive a salary;
- The employment contract clearly stipulates roles and responsibilities;
- All providers receive a bonus payment that is proportionate to the revenues of the clinic (which depend on patient numbers and achievement of population level targets);

i. Capitation payment to the clinic

We recommend that the clinic as an organization receive a capitation payment that is based on the number of patients who are officially registered with the clinic.⁸ This recommendation is based on our expert opinion. There is no literature to evaluate, empirically or otherwise, the advantages and disadvantages of various methods of paying *clinics*. Clinics in British Columbia, Ontario, the United Kingdom, and New Zealand receive this form of capitation payment. The alternative, not commonly used, is a capitation payment that is based on the potential number of patients in a geographical catchment area.

The rosteing allows for a capitation system in the true sense of the word, a payment per capita. This system ties the clinic's funding to its activities, which creates a motivation to offer services to larger numbers of patients. The geographical system in effect becomes a block funding arrangement. The funding flow to the clinic is divorced from the clinic's actual activities and does not motivate services. This distinction is important also when it comes to clinic location. Clinics that are located in densely populated areas might be overlapping in terms of geographical catchment area. As two clinics cannot be paid for the same patient populations, a geographical capitation would require that clinics obtain permits to practice is designated locations.

ii. Pay-for-performance to the clinic

We recommend that each clinic has the opportunity to earn bonus payments for the achievement of population level targets. These kinds of bonuses are offered in other jurisdictions, including Manitoba, Ontario, the United Kingdom, Australia and New Zealand. (Wranik and Katz, 2011) Population level targets specify the percentage of the population that received a desired service or achieved a desired health outcome. These are typically used with preventive screening or vaccinations. Examples include targets used in Ontario (e.g. Mammogram given to 55-75% of the eligible population, target is stepwise), or in Manitoba (e.g. physical activity advice given to 20-100% of the population, target is stepwise). The setting of targets, when done rigorously, can improve responsiveness to patient needs. The setting of targets and financial rewards is justified only, if there is a demonstrated shortfall in the provision of specific services.

Empirical literature that investigates the effects of pay-for-performance programs is not conclusive, although it seems that preventive services and screening services improve with the introduction of these bonus payments. (Li et al., 2011) To adequately implement targets, the current levels of services must be measured on an ongoing basis.

⁸ The term capitation is used here to mean a fixed payment per patient, which can be adjusted for patient risk factors (e.g. age, sex, disease profile). See the description by the College of Family Physicians of Canada at <http://toolkit.cfpc.ca/en/remuneration/capitation.php>, or by Alberta Health at <http://www.health.alberta.ca/professionals/ARP-Clinical.html>.

Other types of targets include service volume targets and patient level targets (Wranik and Katz, 2011). Service volume targets are appropriate when there is desire for clinics to focus on specific services, because the area in which the clinic is located is underserved in those specific activities. For example, a target might be that a clinic has X number of obstetrical deliveries, prenatal and postnatal visits in a year. This target would be set in an area where a service gap in maternal care has been identified.

Patient level targets specify the types and volume of services a patient with a specific condition should receive. Patient level targets can be incorporated into the employment contract, and the clinical guidelines used by a clinic, and therefore we do not recommend incorporating patient level targets into a pay-for-performance system. Patient level targets have been used in British Columbia, Ontario, Nova Scotia, Australia, and New Zealand. There have been no studies that compare the effectiveness of pay-for-performance programs aimed at these three types of targets. Some authors have criticized pay-for-performance programs for offering marginal improvements at a high cost, motivating strategic gaming behaviours by providers, and focusing clinical activities on what might not best correspond to specific patient needs. (Li et al., 2011)

iii. Salaries to providers

We recommend that all providers, including physicians, are offered salaries as stipulated in an employment contract with the clinic (Model 3 in Section 6). We recommend contracting at the clinic level (rather than with government directly) for two reasons: (i) the income of providers remains tied to the clinic's budget, and as such each provider is more likely to support the clinic's activities, and (ii) the employment contract should clearly specify roles and responsibilities of the provider. The latter might vary depending on local population health needs, and should therefore be created locally.

The salary as an incentive system does not create motivation to increase service or patient volumes; therefore we recommend blending with bonus payments (discussed below). The salary system, in comparison to fee-for-services or capitation, does not hamper inter-professional collaboration, sharing of decisions and sharing of responsibilities, as there is no competition between providers for patients and/or for services. In addition, the salary removes any differentiation between the activities on which the provider focuses; therefore the sharing of responsibilities within a team is not hampered by financial considerations, and the selection of activities can be fully based on patient needs.

There are a number of advantages to offering salaries. Many physicians prefer non-fee-for-service payment methods, including salaries. From the point of view of physicians, salaries are attractive in that they offer income stability. The stability of a salary is particularly attractive to risk averse physicians, non-entrepreneurial physicians, as well as physicians

who want to innovate their practice or focus on aspects of care other than the billable services within the FFS system. In practice, salaries that replace fee-for-services systems tended to offer a higher income, further increasing satisfaction. (Green et al., 2009; National Physician Survey, 2004) From the point of view of the payer, the employer-employee relationship that accompanies a salary arrangement allows for the stipulation of employment contracts, including obligations to engage in collaborative and interdisciplinary activities.

The introduction of salaries does not come without its challenges. The introduction can be voluntary or mandated. The latter is a simpler option in terms of functionality, however might be politically not feasible. The introduction of a voluntary system, where physicians may switch from the current FFS practice to the salaried practice can only be successful, if the salaries offered are financially attractive to physicians. If salaries are offered at the average level of earnings of physicians, only those below and at average will have a financial incentive to join the new system. Those with below average earnings in a fee-for-service system are the lower productivity physicians; therefore the new system might be faced with insufficient productivity. If salaries are offered at the top earnings of the most productive physicians, tensions will arise due to the large increase in income for low productivity physicians; an increase that would be considered undeserved. If differential salaries are offered, where each physician receives a salary based on their own earnings in past years, the system will be fraught with inequalities. Since female physicians are less productive than male physicians (Constant and Leger, 2008), a situation would be created where female salaries would fall below male salaries.

iv. Bonuses to providers

In addition to regular salary payments, we recommend that all team members are offered bonus payments that are tied directly to the capitation and pay-for-performance revenues of the clinic. This is a form of profit sharing for employees, which has been advocated as a mechanism for employee commitment and loyalty. The profit sharing system discussed in the context of hospitals is described as aligning the incentives of the organization and providers. (Leger, 2011) In the context of an interdisciplinary primary health care clinic, the bonus payments tied to clinic capitation and pay-for-performance earnings play the same role. The incentive to accept patients and to provide targeted services is transferred from the clinic as a whole, to individual providers.

A complication with the introduction of bonus payments might lie in the incorporation of the proposed compensation system into union agreements of non-physician professionals. However, there does seem to be some support for experimentation with innovative payment systems. The Canadian Nurses Association, for example, supports blended capitation models for team members. (Jacobsen, 2012)

v. Summary of compensation methods

Table VIII – Compensation options for PHC teams in Alberta

Physicians	FFS		
	Strengths	Challenges	Effects on integration
	<ul style="list-style-type: none"> • No change required, politically appealing; • Income of others not tied to FFS revenues by physician; 	<ul style="list-style-type: none"> • Does not motivate collaboration or interdisciplinarity; • Income of physician not tied to operations of PCN; 	<ul style="list-style-type: none"> • Integration low; payment encourages focus on billable activities; time spent on collaboration is not billable.
	Capitation with FFS		
	Strengths	Challenges	Effects on integration
	<ul style="list-style-type: none"> • Ties physicians' incomes to operations of PCN (patient volume); • Decreases incentive for over-supply of services; 	<ul style="list-style-type: none"> • Motivates acceptance of relatively healthy patients; • Requires creation of patient rosters; • Income not stable, low in low population areas. 	<ul style="list-style-type: none"> • Incentive to delegate as many tasks as possible without losing patients to reduce own cost of providing care.
Capitation with FFS and Pay-for performance			
Strengths	Challenges	Effects on integration	
<ul style="list-style-type: none"> • Ties physicians' incomes to operations of PCN (patient volume and achievement of targets); • Can target interdisciplinary care directly; 	<ul style="list-style-type: none"> • Adds administrative burden; • Requires solid data tracking system; 	<ul style="list-style-type: none"> • Incentive to delegate is mitigated by incentive to focus on billable activities. Low fee activities delegated, not necessarily responding to patient need. 	
All Providers	Salaries		
	Strengths	Challenges	Effects on integration
	<ul style="list-style-type: none"> • Offers stable income; • Not tied to activities of any provider; • Interdisciplinary requirement can be built into employment contract. 	<ul style="list-style-type: none"> • Motivate delegation, not collaboration; • Do not motivate activity; • May attract low productivity physicians; • May create income inequality; 	<ul style="list-style-type: none"> • Incentive to delegate as many tasks as possible. • Employment contract can require collaborative activity.
	Salaries with bonus payment		
Strengths	Challenges	Effects on integration	
<ul style="list-style-type: none"> • Motivates acceptance and retention of patients (bonus is tied to capitation income of clinic); • Motivates target achievement (bonus is tied to pay-for-performance for clinic); 	<ul style="list-style-type: none"> • Budget impact; • Motivates acceptance of relatively healthy patients; • Bonus payments might be too low to truly motivate; • Determination of salary amounts is a challenge. 	<ul style="list-style-type: none"> • Incentive to delegate is mitigated by common interest in sustaining high patient numbers. • Employment contract can require collaborative activity. 	

Adapted from Wranik et al. (2011)

Table VIII below summarizes the advantages and disadvantages of compensation methods to health professionals (physicians and other providers) that would be team members the interdisciplinary teams in Alberta. The table is not a summary of all theories of incentive effects of various remuneration methods, it refers solely to options that may be considered by Alberta Health. The variations of fee-for-service payments are discussed under the heading “physician”, as this is the type of compensation currently offered to most physicians, and it is rarely offered to other providers.

The FFS system is discussed, as it is the primary method of remuneration offered to physicians in the current PCN environment. The FFS remuneration offered to physicians does not motivate collaboration or shared decision making, but rather the delegation of non-lucrative and non-billable services to other providers. The income of other providers does not depend on the activities of the physician, which is a positive feature from the perspective of patient centredness. The activities of other providers do not focus on increasing the possible number of billable services by the physician. The income of the physician, however, is divorced from the operations of the organization; therefore there is no financial incentive to further the organizational goals.

8.2 SUPPORTING FEATURES

Recommendations for supports to enable the functioning of the proposed compensation and contracting model are:

- Patients are required to formally enrol with the primary health care clinic.
- A standardized data collection system is developed and used in all clinics.
- Clinics are required to update their business plans on a regular basis.

i. Rostering

The compensation and contracting system we have recommended requires that the clinic records and tracks all of its patients, and that patients do not seek similar services from other clinics. The capitation system requires that patients are registered with one clinic. The pay-for-performance system requires that detailed information is available about the clinic’s patient population. The capitation system for clinics, as well as a pay-for-performance component requires the implementation of a formal rostering system. A patient roster is a list of all patients registered with a clinic. Rostering, or patient enrolment, is defined as a dual commitment, where the patient commits to seek treatment from their enrolling clinic, and the clinic agrees to provide comprehensive care to the patient. (BCMA, 2002, Carlsen and Norheim, 2003, Flemming, 2010) The characteristics of rostered patients are critical and any capitation formula has to adjust for factors that reflect patients’

differential needs for health care services, such as their age, sex, and/ or health profile. (Menec et al., 2000)

Rostering is said to improve efficiency, as it ties funding and compensation to the number of patients, adjusts compensation to the health needs of patient populations, and allocates funding on the basis of population health needs and requirements. (Flemming, 2010) Rostering clarifies the responsibilities of patients and physicians, and provides increased opportunity for accountability. Care continuity is promoted, and duplication of services is reduced. (BCMA, 2002) The British Columbia Medical Association report discusses several other benefits of patient rostering, including increased patient satisfaction, better preventive care, more timely access to care, better compliance with treatment regimen, and lower discomfort with chronic disease and disability. (BCMA, 2002)

Challenges that have been identified include a reduction in patient choice, as patients are not free to switch providers with every visit; rising patient expectations about the nature and speed of care they receive; increased administrative costs, and geographic issues in large urban centres, where patients have to decide to choose a clinic close to home or close to their workplace. (BCMA, 2002)

Rostering is not uncommon, although not the norm in Canada. In Ontario, more than 9.35 million patients are enrolled with a PHC organization, representing approximately 70% of the province's population. (Flemming, 2010). The proposal for patient rostering was viewed positively by Australian physicians, who acknowledged the benefits of the two way commitment, despite being worried about added administrative burden. (Corderoy, 2009)

An alternative rostering system that does not require formal registration of patients is the so called 'assigned practice population' method, where the patient roster is based on existing utilization patterns. Patients are assigned to a practice population if they receive the majority of their care (e.g. 75%) from the same clinic. The details of this approach are described in the report of the Manitoba Centre for Health Policy Research and Evaluation. (Menec et al., 2000)

While the current PCN funding formula is based on a capitation system, this system has been criticized by the Auditor General among others for lack of transparency. It is not clear who the patients are that are paneled with specific PCNs and physicians. The lack of transparency cannot be carried forward, and especially when provider incomes are tied to patient volume. Furthermore, a capitation formula that is risk adjusted (to account for variety in patient health status) requires detailed knowledge of the patient population and its profile. We recommend that the capitation formula be risk adjusted, although the details of such a system are outside of the scope of this report.

ii. Data collection

The implementation of a pay-for-performance program with population level targets requires a supporting data collection system. In order to establish meaningful targets, for example, one needs to know the current levels of service provision. A target is meaningful only, if it is set above the current level of provision; otherwise the pay-for-performance program fails to improve care. The data collection system is an extension of the use of electronic medical records. Individual patient records have to be easily transposed into an administrative data set that can be aggregated across patients. The focus of this report is not on the approaches to collecting information within primary care. The recommendation is that a standardized data collection mechanism is a necessary component of the proposed compensation system.

iii. Business Planning

To support effective team functioning, teams must establish processes for collaboration (described in the next section). To ensure that the right care is delivered according to patient needs, clinics must develop care guidelines for guidelines and processes for specific types of patients. We recommend that these policies, processes and guidelines be updated by clinics on a regular basis (e.g. annually, or once every three years), and that the submission of updated business plans is a condition for continued funding from the province.

The guidelines created in the process of business planning might include e.g. the description of a complete cycle of care for a diabetic patient or a mental health patient. The guideline describes the services to be offered to the specific type of patient along with a specification of the provider within the team to deliver specific services. Guidelines around patient acceptance and referrals to secondary care also need to be created by the clinic.

Adherence to clinic guidelines and policies would become a stipulation in the employment contract. Where under a fee-for-service system, the completion of care cycles can be motivated with patient level pay-for-performance incentives, in a salary system, it can be mandated in the terms of employment.

Regular updates to business plans ensure that the care guidelines and processes of the clinic, as well as pay-for-performance targets, continue to respond to population health needs. When population health needs change, so will the most appropriate approaches to health care. Planning at the clinic level, as contrasted with a more centralized approach, ensures that clinics are responsive to the needs of their specific patient population. This may result in clinics taking a specific focus (e.g. diabetic care, geriatric care).

Family Health Teams in Ontario use a similar system, where participating teams address local population health characteristics and needs through their business and operational plan cycles. In creating their business plan, Family Health Teams initially develop localized strategic program plans based on community health needs and service gaps. Family Health Teams then are required to report on these programs and services annually through their service and operational plans.⁹ (MOHLTC, 2012)

9. TEAM STRUCTURE

Financial and other supports are necessary, but not sufficient to ensure the effective functioning of teams. The structure of teams, including processes, and team composition, are important elements of building a solid interdisciplinary team. The following recommendations are made with respect to team structure:

- Each team jointly formulate goal statements, and supporting objectives, including measurable indicators.
- Each clinic develop clear definitions of roles and expectations from all team members.
- Each clinic explicate processes and policies to guide collaboration (e.g. number and frequency of meetings), care planning, decision making and dispute resolution.
- Alberta Health specify the desired ratios of physicians to other providers based on similar practices in other jurisdictions.

9.1 Team Processes

As highlighted in the first of the two reports, there is strong evidence suggesting that effective teams have a specific set of features: transparency and clarity, togetherness, supportive processes, and institutional reinforcements. These features can be regulated by policy makers; continued funding can be made contingent on the implementation of these regulations.

To be effective, teams require transparency and clarity with respect to a number of organizational features. These include: (i) an explicit statement of a shared vision, goals, objectives or any other statement of common purpose that is arrived at by the team as a whole; (ii) a clear definition of roles and expectations of all team members; (iii) an explication of team processes, such as processes of decision making, dispute resolution, or clinical processes; and (iv) a clear documentation of measurable outcomes that are related to the shared goals. (Cohen and Bailey, 1997; Drew et al., 2010; Griffiths et al., 2004; Grumbach and Bodenheimer, 2004; Hurst et al., 2002; Pearson et al., 2006; Proudfoot et al.,

⁹ Through this process, the services offered are re-evaluated, however, there is no stipulation within the business, operational, and strategic planning cycle for the initial population health needs assessment to be re-evaluated which is an important element in order to avoid unnecessary service provision and gaps.

2009; Rubin and Beckhard, 1972; Shaw et al., 2005; Solheim et al., 2007; Xyrichis & Lowton, 2008)

The development of the goal statement is equally important as its existence. The joint development of such statements increases the likelihood of each team member's commitment to the shared vision of the organization. The definition of roles and expectations facilitates team work in that there is no day-to-day dispute around task assignment. When teams are jointly in charge of the health care provided to a patient, it is particularly important to understand who bears responsibility for which task in the process. The documentation of outcomes is advocated as a method for motivation of team members, as well as a tool for monitoring and management.

The shared vision increases the 'togetherness' of teams, but does not guarantee team effectiveness. Team togetherness further requires processes for joint or shared decision making. Each team member must understand what is expected of them in the decision making process and have a sense of being valued in their opinion. Team togetherness requires individual buy-in, or allegiance to the team, and is further enhanced if the composition of the team is interdisciplinary and inclusive. (Drew et al., 2010; Griffiths et al., 2004; Grumbach and Bodenheimer, 2004; Hurst et al., 2002; Pearson et al., 2006; Proudfoot et al., 2009; Rubin and Beckhard, 1972; Shaw et al., 2005; Solheim et al., 2007; Hurst et al., 2002; Xyrichis & Lowton, 2008) Shared goals, insofar as they can be expressed in measurable terms, can be incorporated into the pay-for-performance program, giving all team members a financial incentive to work toward the same goals.

Teams who have supportive processes in place are also shown to be more effective. 'Supportive processes' refer to both, and the structure of the team, specifically, a non-hierarchical team, and the leadership of the team. Effective team leadership can ensure coordination of activities, facilitate conflict resolution, and promote communication, while respecting the autonomy of the team members. Leadership in primary health care teams is often in the form of physician-leads which can institute a hierarchical structure, thereby decreasing the interdisciplinarity of teams. A distinction is needed between process leadership, and taking charge of clinical decision making. (Drew et al., 2010; Griffiths et al., 2004; Grumbach and Bodenheimer, 2004; Hurst et al., 2002; Murray et al., 2008; Pearson et al., 2006; Proudfoot et al., 2009; Rubin and Beckhard, 1972; Schuetz et al., 2010; Solheim et al., 2007; West et al., 2003; Xyrichis & Lowton, 2008)

Finally, teams are more effective when there are appropriate institutional reinforcements or structures to support them. Supporting teams requires strong clinical and administrative systems, performance feedback, and change management, for such things as redistributing resources and restructuring many practices. Similarly, the *mismanagement*

of resources obstructs the effectiveness of teams. (Chesluk & Holmboe, 2010; Drew et al., 2010; Grumbach and Bodenheimer, 2004; Griffiths et al., 2004; Hurst et al., 2002; Jansen, 2008; Johnston et al., 2011; McDonald et al., 2011; Murray et al., 2008; Nutting et al., 2009; Pringle et al., 2000; Xyrichis & Lowton, 2008)

9.2 Team composition

The literature reviewed does not provide evidence as to the optimal composition of an interdisciplinary team. A few studies describe team composition, but no head-to-head evaluations of various provider ratios and effects on care are available. Our analysis of existing practices in Canadian jurisdictions reveals that jurisdictions that give guidelines with respect to provider ratios have teams with higher interdisciplinarity; whereas Alberta PCNs, who are left to establish their own provider ratios, tend to include predominantly physicians. We also observe that there is a core team membership that is similar across jurisdictions. Therefore we recommend that:

- To support team interdisciplinarity, Alberta Health specify the number each type of health care professional per patient population.
- Team members include the following health professionals: primary care physician, physician assistant or nurse practitioner, nurses (registered, licensed practical), pharmacists, and other professionals as dictated by the needs of the patient population, such as dietitians or mental health professionals.

While an optimal team composition is not suggested in the literature, a variety of team structures are described. A combination of physicians, physician assistants, nurse practitioners and registered or licensed nurses are described by Rodriguez et al (2007) and Ferrente et al (2010). Crampton et al (2005) and Long (1996) look at primary health care teams as consisting of physicians, nurses, and midwives. Khan et al (2008) and Nemis-White et al (2011) describe primary health care teams as consisting of physicians, nurses, and dietitians. Pharmacists are included in the description of team composition by Farris et al (2004) and Schuetz et al (2010), the former listing physicians, nurses, and pharmacists, and the latter listing physicians, physician assistants, nurse practitioners, registered or licensed nurses, dietitians, pharmacists, and social workers.

Our jurisdictional scan revealed that while some Canadian provincial health agencies recommend, and/or fund, other health care providers using a formula based on either the number of physicians or patients, other provinces delegate the task of team creation to the individual network or clinic. Team composition is not stipulated in British Columbia, Alberta, and Manitoba, where only patient per physician ratios are recommended, leaving

the type and number of other health care professionals to the purview of the individual clinic or network. In Saskatchewan, Ontario, Quebec, and Prince Edward Island, the recommended type and number of other health care providers is formulaic. Two types of formulas are used in these provinces: (i) the number of other health care providers is based on the number of physicians; and (ii) the number of other health care providers is based on the number of patients. In Saskatchewan’s Primary Healthcare Teams and in Prince Edward Island’s Primary Healthcare Networks, the first formula is utilized, in which the number of other health care providers is based on the number of physicians (See table IX). Ontario’s Family Health Teams and Quebec’s Family Medicine Groups use the second formula, in which the number of other health care providers is based on patient roster (See table X).

Table IX – Team composition based on number of physicians

Province	Physicians	Other Healthcare Providers
Saskatchewan	3-4 physicians	1 nurse practitioner
	5-10 physicians	2 nurse practitioners
Prince Edward Island	2 physicians	1 licensed practical nurse
	2 physicians <i>or</i>	1 registered nurse
	2 nurse practitioners	

Table X – Team composition based on number of patients

Province	Patient Roster	Other Healthcare Providers
Ontario	1,000 patients	1 pharmacist
	4,000 patients	1 registered nurse <i>With expected expansion of 400 patients</i>
	4,000 patients	1 nurse practitioner <i>With expected expansion of 800 patients</i>
Quebec	15,000 patients	2 nurses

Alberta does not stipulate the team composition in Primary Care Networks, rather it is the purview of the individual PCNs. Using information from 17 PCNs, or 42%, we can see (Tables XI and XII) that when decisions regarding team composition are left to the discretion of individual networks, the interdisciplinarity of each network is far from what is recommended in other provinces.¹⁰ More specifically, the number of non-physician health care providers employed, whether based on the number of physicians or the number of patients, is much less than other jurisdictions. In order to compare and contrast the composition of teams currently utilized in Alberta to the recommended team composition in other provinces, we can apply the above formulas (the number of non-physician health

¹⁰ PCNs used in this analysis: Alberta Heartland, Athabasca, Big Country, Bonnyville, Bow Valley, Camrose, Cold Lake, Grand Prairie, Kalyna Country, Leduc Beaumont Devon, Northwest, Palliser, Peace River, Sherwood Park/ Strathcona County, St. Paul / Aspen, West View, and Wolf Creek

care providers determined by the number of physicians, or by the number of patients) to PCNs.

The interdisciplinarity of PCNs are spread over the entire network, thus teams are not necessarily co-located. While some networks employ occupational therapists, social workers, and psychologists, the most common non-physician health care providers employed in a PCN team are registered nurses, licensed practical nurses, pharmacists, dietitians, and nurse practitioners. In roughly half of all PCNs, those examined here, 82% employ registered nurses, 53% employ licensed practical nurses, 53% employ pharmacists, 47% employ registered dietitians, and 29% employ nurse practitioners.

Table XI – Existing PCN Team composition based on number of physicians

	Physicians	Other Healthcare Providers
Average	10 physicians	1 registered nurse
	21 physician	1 nurse practitioner
	23 physicians	1 licensed practical nurse
	29 physicians	1 dietician
	30 physicians	1 pharmacist
Upper	48 physicians	1 registered nurse
	36 physicians	1 nurse practitioner
	69 physicians	1 licensed practical nurse
	48 physicians	1 dietician
	69 physicians	1 pharmacist
Lower	2 physicians	1 registered nurse
	8 physicians	1 nurse practitioner
	6 physicians	1 licensed practical nurse
	11 physicians	1 dietician
	8 physicians	1 pharmacist

Table XI shows the results of applying the formula used in Saskatchewan’s Primary Healthcare Teams and in Prince Edward Island’s Primary Healthcare Networks, in which the number of other health care providers is based on the number of physicians. While Saskatchewan recommends 1 nurse practitioner for 3 to 4 physicians, in the PCNs, on average, there is 1 nurse practitioner for 21 physicians. Similarly, while PEI recommends a ratio of 1 licensed practical nurse for every 2 physicians, currently in the PCNs, the average is 1 licensed practical nurse for every 23 physicians.

Table XII shows the results of applying the formula used in Ontario’s Family Health Teams and Quebec’s Family Medicine Groups, in which the number of other health care providers is based on patient roster. While Ontario recommends 1 pharmacist for 1,000 patients, in the PCNs, on average, there is 1 pharmacist for 35,000 patients. Similarly while Quebec recommends a ratio of 1 nurse for every 7,500 patients, currently in the PCNs, the average

is 1 licensed practical nurse for every 25,000 patients, and 1 registered nurse for every 12,000 patients.

Table XII – Existing PCN Team composition based on number of patients

	Patients	Other Healthcare Providers
Average	12,000 patients*	1 registered nurse
	24,000 patients	1 nurse practitioner
	25,000 patients	1 licensed practical nurse
	33,000 patients	1 dietician
	35,000 patients	1 pharmacist
Upper	56,000 patients	1 registered nurse
	42,000 patients	1 nurse practitioner
	89,000 patients	1 licensed practical nurse
	56,000 patients	1 dietician
	89,000 patients	1 pharmacist
Lower	2,000 patients	1 registered nurse
	11,000 patients	1 nurse practitioner
	6,000 patients	1 licensed practical nurse
	14,000 patients	1 dietician
	9,000 patients	1 pharmacist

*rounded to the nearest ,000.

10. EVALUATION PLANNING – HOW WE CAN MAKE SURE THAT WE DID IT RIGHT

This section offers some general guidelines to the planning of evaluations of team based primary health care approaches. Evaluation can serve several purposes. The most common are to demonstrate accountability; improve performance; ensure efficient utilization of resources; determine the effectiveness of program delivery; and build individual, team and/or organizational capacity. The clear definition of evaluation scope and purpose are the first steps of evaluation planning.

10.1 Potential evaluation foci

In the case of team based primary health care delivery, the following potential perspectives could be taken, each giving the evaluation a different focus. The Government of Alberta, as the funder and policy maker, might be interested in broader resource and allocation questions. Examples are: (i) what were the resources used for; (ii) have the resources been spent effectively and efficiently and what has been the impact; (iii) are primary health care teams the best use of resources, or would alternative approaches produce greater benefits?

Alberta Health and Alberta Health Services, as the program manager and service delivery agency, would focus on program implementation and the achievement of performance targets. Their questions might include: (i) are the primary health care teams working effectively; (ii) have teams adopted processes as required by Alberta Health; (iii) are the team structure, compensation and management methods supportive of interdisciplinarity and collaboration; (iv) are the goals of service delivery (e.g. continuity, comprehensiveness, coordination, chronic care management, etc.) being met?

Members of primary health care teams, as the frontline delivery agents, would focus on potential areas for improvement, team building, and day to day operations. Their questions might include: (i) could team effectiveness be improved and how; (ii) do all team members feel valued, and are their professional contributions respected; (iii) is compensation and management perceived as fair and supportive; (iv) are patients satisfied with the care they receive?

The above questions are not exhaustive; they are listed to highlight the differences in evaluation perspectives. Assuming that an evaluation is commissioned and planned by Alberta Health, the focus of the evaluation would be on program implementation and the performance targets, with some interest in the day-to-day operations of, and potential improvements to, teams at the frontline. A complete evaluation framework would include a solid plan for data collection, including a plan for what data should be collected, on which groups, and at which points in time, as well as a plan for data analysis. The data to be collected are performance indicators that measure specified performance criteria. A few indicators are suggested in this section, while a complete list of indicators would be a part of a complete evaluation framework.

An assessment of changes in indicators over time allows for an assessment of progress, but does not allow us to isolate the effects of any particular initiative. The comparison of changes on two different groups, one of which is subject to the initiative of interest, allows for some isolation of program effects. In the case of an evaluation of primary care teams in Alberta, a feasible comparison is with existing teams within Primary Care Networks. It is not clear, if the team structure and compensation proposed here will replace the current structures of PCN, be used alongside current structures and within PCNs, or be used in a different organizational context. From the perspective of evaluation, results would be more reliable, if existing PCNs and their existing approaches were left in place alongside other initiatives, to allow for a meaningful comparison.

10.2. Potential indicators

Table XIII – Key Concepts and Sample Indicators and Instruments

Concept	Indicators and Instruments for measurement
Team processes/ climate	Provider surveys, patient surveys and chart abstractions along a multitude of performance indicators (Dahrouge et al., 2009; Hogg et al. 2009; Milliken et al., 2011; Muldoon et al., 2009; Russell et al., 2009) Team Climate Inventory (TCI) (Bosch et al., 2008; Bower et al., 2003; Howard et al., 2011)
Team effectiveness	Performance effectiveness (productivity, efficiency), member attitudes (satisfaction, commitment), behavioural outcomes (absenteeism, turnover). (Cohen and Bailey, 1997) Health Care Team Effectiveness (HCTE) scale (Bower et al., 2003) Semi structured questionnaire to self-assess team effectiveness along six criteria (Drew et al., 2010)
Interdisciplinarity /Collaboration	No existing tools found.
Care comprehensiveness	No existing tools found.
Care coordination	Primary Care Assessment Tool (Cassady et al., 2000; Haggerty et al., 2003; Shi et al., 2001; Starfield et al., 1998)
Access to care	Primary Care Assessment Tool (Cassady et al., 2000; Haggerty et al., 2003; Shi et al., 2001; Starfield et al., 1998) CIHI Indicators
Improved chronic care	Pay-for-performance tracking system; same indicators used to measure achievement of targets (Katz et al., 2004) Adherence to practice guidelines, chart audits (Bower et al., 2003; Hogg et al., 2009; Russell et al., 2009) Provider surveys, patient surveys and chart abstractions along a multitude of performance indicators (Dahrouge et al., 2009; Hogg et al. 2009; Milliken et al., 2011; Muldoon et al., 2009; Russell et al., 2009)
Improved preventive care	Pay-for-performance tracking system; Same indicators used to measure achievement of targets; (Katz et al., 2004) Adherence to practice guidelines, chart audits (Bower et al., 2003; Hogg et al., 2009; Russell et al., 2009) Provider surveys, patient surveys and chart abstractions along a multitude of performance indicators (Dahrouge et al., 2009; Hogg et al. 2009; Milliken et al., 2011; Muldoon et al., 2009; Russell et al., 2009)
Patient satisfaction	General Practice Assessment Survey (GPAS) (Bower et al., 2003)

The **Team Climate Inventory** (TCI) is a 65 item measure with six subscales that are rated on 5 point Likert scales. The aspects of team climate fall into six general categories: (i) participation, or the safety of the decision making environment, information sharing, feelings of being understood and valued; (ii) support for innovation, including openness to new ideas and sharing of resources; (iii) reflexivity, including team discussions, review of objectives, communications and decisions; (iv) task orientation, including monitoring of each others' work, appraisal of weaknesses, provision of practical ideas and help; (v) clarity of objectives, including understanding and agreement about objectives and their perceived usefulness; and (vi) teamworking, including interdependence and perceived liking for teamworking. An example is the statement "There are real attempts to share information throughout the team" which is to be rated from 'strongly agree' to 'strongly disagree' by respondents. (Bosch et al., 2008; Bower et al., 2003; Howard et al., 2011)

The **Health Care Team Effectiveness** (HCTE) is a self-reported measure of team effectiveness with 21 items that are rated on 7 point Likert scales, and are to be completed by health professionals. The items are combined into three broad categories: (i) professional practice, including setting of protocols, use of research evidence, and audits; (ii) teamworking, including professional development and equal opportunities; and (iii) patient centred care, including provision of information to patients, and availability of a complaints procedure. There is also one score for overall team effectiveness. (Bower et al., 2003).

The **General Practice Assessment Survey** (GPAS) is a 53 item self-reported questionnaire that assesses multiple dimensions of primary care from the perspective of the patients. The dimensions include access, technical care, communication, interpersonal care, trust, knowledge of the patient, nursing care, reception, continuity of care, referral, coordination of care, patient recommendation, and overall satisfaction. Questions are asked about aspects of care, followed by scaling questions. E.g. "In general, how often do you see your doctor?" followed by "How do you rate this?" Three areas of general practice are assessed: (i) access; (ii) patient centredness; and (iii) nursing.

The **Primary Care Assessment Tool** (PCAT) was developed by the Johns Hopkins Bloomberg School of Public Health.¹¹ The PCAT consists of client surveys, facility surveys, provider surveys, and a health system survey. As such, only components of the PCAT have been used in the above cited studies, and would be relevant for the evaluation of team based primary care in Alberta. Desirable characteristics of primary care are categorised into: first contact care, person-focused care over time, comprehensiveness, coordination, community orientation, family-centredness, and cultural competence. Haggerty et al.

¹¹ http://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-primary-care-policy-center/pca_tools.html

(2008), as an example, use the PCAT to measure first-contact accessibility, relational continuity, and coordination continuity. These concepts are measured using patient assessments. (Cassady et al., 2000; Haggerty et al., 2003; Shi et al, 2001; Starfield et al., 1998)

We do not recommend that each of these tools is used to its full extent, as this practice would lead to response fatigue and response rates would likely be quite low. We suggest that these tools be used as working documents, from which a set of most relevant and most appropriate indicators can be composed. The use of these tools is suggested, as they have been validated in the literature.

In addition, the *Canadian Institute for Health Information* (CIHI) has contracted with many Canadian researchers cited in this report on the development of a set of agreed upon primary health care indicators. These indicators are developed for micro or meso level comparisons, but some may be adaptable to the clinic level.¹² For example, a series of indicators is suggested that would be available via patient surveys. Of those, indicators relating to access (wait time for appointments, satisfaction with wait times, etc.) could be asked at the clinic level to assess access to care.

The literature used for this report did not identify validated tools used to measure the degrees of interdisciplinarity, collaboration, and care comprehensiveness. We do not claim that such validated tools do not exist in the literature, but our systematic review of the literature did not have as a focus the measurement of these concepts. A complete evaluation framework would include indicators for these concepts.

10.3. Research design

Given the timing of this report and the developments surrounding PHC team-based delivery in Alberta, the Province has the unique and exciting opportunity to exploit a natural experiment setting for purposes of an evaluation. Evaluations are often commissioned after programs have been running for a number of years, resulting in poor evaluation research designs, and consequently, unreliable results. The case here will allow Alberta Health to create a quasi-experimental setup, which, in the social sciences, is the most robust research design. Following the recommendations below will allow Alberta Health to speak with confidence about the effects that competing PHC delivery structures have on selected indicators.

¹² <http://www.cihi.ca/CIHI-ext-portal/internet/EN/TabbedContent/types+of+care/primary+health/cihi006583>

Our recommendation is that the evaluation plan be developed as soon as possible, and include a comprehensive set of survey tools for patients, providers, and whole clinics, based on the validated tools described above. The evaluation should measure each concept at baseline, and then again after a three to five year period. It is imperative that baseline information is available, so that change over time can be traced meaningfully. It is also our recommendation that the indicators be tracked (at baseline and after 3-5 years) for all types of PHC teams in Alberta, including the currently existing PCNs, and future modified PCNs, Family Care Clinics, or any other PHC team-based organizations. For a complete comparison, the same indicators should be tracked (at baseline and after 3-5 years) for standard sole-practices, where one or two physicians work in a fee-for-service system. Critical to the evaluation is the ability to compare progress over time between different types of practices. This will allow for the assessment of the most effective PHC organization, which is presumably a goal of an evaluation from the perspective of Alberta Health.

11. CONCLUSION

Alberta is and has been a Canadian leader in the implementation of new models of delivery and provider payments in primary health care (Wranik et al., 2010). Over the past decade, the focus has been on the development of an effective interdisciplinary team based model of delivery. The Primary Care Networks have been a great contributor to progress in this domain, and the more recent Family Care Clinics have further cemented the emphasis on interdisciplinarity and collaboration. Given the relations between Alberta Health, Alberta Health Services, and the Alberta Medical Association, coupled with the attractiveness of the Province for human resource immigration, Alberta is in a good position to introduce changes and experiment with a variety of compensation and management models for interdisciplinary teams in the quest to finding the optimal approach.

Based on the academic and grey literature, we concluded that the most effective teams are those with a high degree of interdisciplinarity and collaboration. To achieve better integration of teams, it is important to counteract hierarchical structures that have developed on the basis of historical and cultural aspects. The compensation and management structures of teams must be such, as to mitigate hierarchies and power struggles between various professions. We recommend a two level compensation scheme for interdisciplinary teams. The first level is payment to the clinic, which is a capitation payment blended with pay-for-performance bonuses. We recommend that capitation is based on a roster of registered patients, and the pay-for-performance targets are set at the patient population level only. The second level is payment to providers, which is a salary payment for all providers, blended with a fair share of the clinic's pay-for-performance and capitation revenues. This compensation scheme creates motivation for the clinic and for each provider to accept/retain patients and to deliver targeted services to patients. The

salary compensation to providers eliminates the barriers to collaboration that are present in a fee-for-service system, and it reduces inter-professional competition and turf wars.

The compensation system is coupled with a management system where all providers are employees of either the clinic or Alberta Health directly. The employment contract is an important aspect of the management of interdisciplinary teams, as it can spell out expectations and requirements related to collaborative activities, team processes and team activities, or any other targeted services.

Furthermore, we recommend that supports are put in place. These include an official patient registration system, a solid and reliable data tracking system, and a required planning system for clinics. We also recommend that evaluation be prepared for in advance with an early data collection effort. Alberta is in the unique position to take advantage of its natural experiment by way of collecting baseline information on the effectiveness of current primary health care delivery structures, and to track progress over time of the existing and the newly developed primary health care models.

The recommendations of this report are based in part on an analysis of academic and grey literature, in part on the analysis of primary health care models across Canada, in New Zealand and in Australia, and in part on the logical induction of the authors. Literature on the compensation of interdisciplinary teams is not well developed, and this report is a unique synthesis of the literature on the compensation of individual providers, and the literature on team effectiveness.

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APPENDIX 1: Primary Care Networks

Primary Care Network	Physicians	Patients Enrolled	Clinics / Practices	Other Health Care Providers FTE	Other health care providers to physician ratio
Alberta					
Heartland	27	41,899	11	8.1	31:100
Athabasca	21	22,611	6	3.7	18:100
Big Country	28	36,024	8	9.1	33:100
Bonnyville	14	12,566	1	6.1	44:100
Bow Valley	34	24,267	7	5.5	17:100
Calgary					
Foothills	272	313,657	79	49.9	19:100
Calgary Rural	115	102,438	25	25.0	22:100
Calgary West					
Central	273	293,879	94	41.3	16:100
Camrose	20	24,206	5	5.2	26:100
Chinook	98	146,940	28	69.0	71:100
Cold Lake	7	14,266	3	-	-
Edmonton					
North	117	149,287	48	36.5	31:100
Edmonton					
Oliver	61	76,360	11	23.2	39:100
Edmonton					
Southside	129	163,236	28	40.9	32:100
Edmonton					
West	87	122,502	30	22.9	27:100
Grand Prairie	30	51,571	17	-	-
Highland	41	50,376	13	8.7	22:100
Kalyna					
Country	6	10,802	1	.4	7:100
Leduc					
Beaumont					
Devon	49	55,839	11	10.2	21:100
Lloydminster	14	16,413	4	-	-
McLeod River	26	32,616	5	3.0	12:100
Mosaic	96	177,666	38	27.0	29:100
Northwest	37	24,560	5	2.0	6:100
Palliser	63	89,361	23	34.5	55:100
Peace River	19	18,465	2	7.3	39:100
Provost	2	4,657	1	1.1	57:100
Red Deer	69	110,979	14	19.3	28:100
Rocky					
Mountain	14	14,441	1	4.8	34:100
Sexsmith /	8	10,425	2	0.6	8:100

Spirit River					
Sher. Park					
Strath.					
County	66	85,363	15	24.7	38:100
South Calgary	110	127,588	30	11.6	11:100
St. Albert &					
Sturgeon	53	81,780	15	21.5	41:100
St. Paul /					
Aspen	29	38,365	11	7.9	28:100
Vermilion	4	6,178	1	-	-
Wainwright*	7	7,728	5	-	-
West Peace	6	9,762	2	3.0	51:100
West View	70	71,016	8	36.9	53:100
Wetaskiwin	23	26,099	5	-	-
Wolf Creek	46	55,270	10	12.9	28:100
Wood Buffalo	32	59,268	17	13.8	44:100 ¹³

¹³ Columns 1, 4, and 5:

Auditor General. 2012. Report of the Auditor General: July 2012. Available at: <http://www.oag.ab.ca/files/oag/OAGJuly2012report.pdf>

Columns 2 and 3:

Primary Care Initiative. 2011. Primary Care Networks (PCNs) in Alberta: Detailed listing. Available at: <http://www.albertapci.ca/AboutPCNs/PCNsInAlberta/Pages/ProvincialPCNDetails.aspx>

*Information on Wainwright from Primary Care Initiative; not listed in Auditor's report

APPENDIX 2: LETTER AND SURVEY

Dominika Wranik, PhD
Associate Professor
School of Public Administration
Dalhousie University
Halifax, NS
dwl@dal.ca
902-494-3764

June 28th, 2012

Dear { },

In collaboration with Alberta Health, I am conducting a pan-Canadian and international review of primary care providers and teams of providers in publicly funded health systems. The focus of the project is on the structure and organization of multidisciplinary teams, methods of compensation, and avenues for multidisciplinary teams to support health services goals. A part of the project is to describe compensation methods and contractual arrangements currently used in the Primary Care Networks across the Province.

Some of the information might be used for purposes of my academic research. All information will be treated as confidential. Reports and any other publications will disclose aggregated information, so as to protect the identity of individual Primary Care Networks.

We ask that you please take a few minutes to fill out the table on the following page. We would like to know the **number and types** of providers that work within your PCN, **the method of compensation** they receive, the **source of funding and contractual relationship with the funder**, and information regarding your team collaboration .

Please choose from the following list of compensation methods, or add another and elaborate. When there are several of one type of provider, who receive different payments, please indicate the number and the payment structure (e.g. *13 FFS, 10 Salary, 10 Blend 2*)

- Fee-for-Service
- Salary
- Capitation
- Sessional
- Service Contract
- Blend 1 – Capitation with FFS carve-out
- Blend 2 – FFS with capitation payments
- Incentives and Premiums (just add a + to the base remuneration, e.g. *FFS+*)

In terms of the source of funding and contractual relationship with the funder, we would like to know whether the specific provider contracts with the clinic, the PCN, or Alberta Health Services directly, or if there is a special fund earmarked for a particular position.

Please complete this information **by July 5th, 2012**, and email to **keira.hanrahan@dal.ca** or fax to **(902) 494-7023**. If you have any questions related to this study please contact me at dwl@dal.ca.

Kind Regards,

Dominika Wranik, PhD

Primary Care Network: _____			
Position	Number of Positions	Compensation Method	Funding source and contract
Physicians			
Physician Leads			
Registered Nurses			
Licensed Practical Nurses			
Nurse Practitioners			
Pharmacists			
Navigators			
Registered Dieticians			
Wellness Coordinators			
Social Workers			
Medical Office Assistants			
Psychologist			
Counsellors			
Midwives			
Occupational Therapist			
PCN Network Admin Office			
Executive Directors			
Administrative Assts.			
Care Managers			
Clinic Managers			
Billing Personnel			
Program Coordinators			
Referral Coordinators			
Positions Not Listed Above			

TEAM COLLABORATION

Hours per week spent on team collaboration:

Briefly describe the types of collaborative activities, formal and informal, (eg. meetings, case discussions, policies, or other) if any:

How are these collaborative activities compensated?

ADDITIONAL COMMENTS:

APPENDIX 3: MEDIA SCAN

The Calgary Herald		
Search Term	Relevant Titles	Date Published
Family Care Clinic	Pilot Project Forces Out Clinic	03/23/12
	Alison Redford Promises 140 Family Care Clinics for Alberta	04/02/12
	Political Parties Promise Billions in Perks to Albertan Voters	04/03/12
	Family Physicians Offer Quality 'Medical Home'	04/13/12
	AMA Retreats on Critique of 140 Family Care Clinics	06/15/12
Physician Agreement	Health Minister Imposes 1 Year Deal on Alberta's Doctors	02/28/12
	Alberta Doctors Demand End to Political Interference	03/06/12
	Alberta Health Minister Denies Health Care is in Crisis	03/07/12
	Minister Pledges to Rebuild Trust at Fiery Health Forum	03/07/12
	Tentative Deal Gives Alberta Doctors 2.5% Fee Increase Each Year for Next 2 Years	03/21/12
	Doctors call for Inquiry on Intimidation	03/24/12
	Doctors Prepare to Finalize Compensation Package	04/26/12
	Alberta Ready to Join Ontario in Reassessing Doctor Compensation	05/15/12
Doctor's Association Hopes to Have Deal with Province Formalized by June 30 th	06/04/12	
Primary Care Network	Clinics Dickey	04/08/12
	Family Physicians Offer Quality 'Medical Home'	04/13/12
	Doctors Slam Tory Plan to Expand Clinics for Family Care	04/13/12
	Family Care Clinics are Built Around Patients	04/14/12
	Where Patients Come First	06/04/12
	AMA Retreats on Critique of Plans for 140 Family Care Clinics	06/15/12

The Edmonton Journal		
Search Term	Relevant Titles	Date Published
Family Care Clinic	Edmonton Family Clinic gets Doctors Needed for Pilot Project	03/22/12
	Simons: Health Centre a Model for Entire City	03/24/12
	Alberta Election 2012: Alison Redford Promises 140 Family Care Clinics for Alberta	04/02/12
	Questions Remain about Redford's Family Care Clinic Plan	04/29/12
Physician Agreement	Minister Imposes salary Deal on Doctors	02/28/12
	Doctors get 2.5% Increase in Tentative Deal	03/22/12
	Health Minister Supports Look at Physician Fees	05/16/12
Primary Care Network	Health Probe Bandages over Intimidation: MDs	03/01/12
	Former AHS Boss Stephen Duckett Fires Parting Shots	03/03/12
	Alberta Election 2012: Alison Redford Promises 140 Family Care Clinics for Alberta	04/02/12
	Better Health for Less Money	04/21/12

The Calgary Sun		
Search Term	Relevant Titles	Date Published
Family Care Clinic	Redford Promises Family Care Clinics, a New Way to Deliver Health Care	04/02/12
	Clancy: Big Issues Dog Tories	04/04/12
	Doctors Denounce PC Plan for Family Care Clinics	04/12/12
	Clancy: Unhealthy Obsession with Big Spending	05/17/12
Physician Agreement	---	---
Primary Care Network	Editorial: Sick of Excuses	02/17/12
	Redford Promises Family Care Clinics, a New Way to Deliver Health Care	04/02/12
	Doctors Denounce PC Plan for Family Care Clinics	04/12/12

The Edmonton Sun		
Search Term	Relevant Titles	Date Published
Family Care Clinic	Family Care Clinic could Ease Hospital Woes: Redford	04/13/11
	Mason Calls out Redford	04/08/12
Physician Agreement	---	---
Primary Care Network	---	---

CBC: Calgary and Edmonton Regions		
Search Term	Relevant Titles	Date Published
Family Care Clinic	Health Clinic in SE Calgary part of Pilot Project	03/22/12
	Mosaic Clinic Shuts down to Avoid Provincial Competition	03/28/12
Physician Agreement	Alberta Ties up Doctors in New Deal	03/21/12
Primary Care Network	Mosaic Clinic Shuts down to Avoid Provincial Competition	03/28/12

APPENDIX 4: PCMH, PCN, AND FCC GOALS

Patient-Centred Medical Home

The College of Family Physicians of Canada. 2011. A vision for Canada: Family practice, the patient's medical home. Available at: http://www.cfpc.ca/uploadedFiles/Resources/Resource_Items/PMH_A_Vision_for_Canada.pdf Pg. 9.

"A Patient's Medical Home will be patient centred

A Patient's Medical Home will ensure that every patient has a personal family physician who will be the most responsible provider (MRP) of his or her medical care

A Patient's Medical Home will offer its patients a broad scope of services carried out by teams or networks of providers, including each patient's personal family physician working together with peer physicians, nurses, and others

A Patient's Medical Home will ensure i) timely access to appointments in the practice and ii) advocacy for and coordination of timely appointments with other health and medical services needed outside the practice

A Patient's Medical Home will provide each of its patients with a comprehensive scope of family practice services that also meets population and public health needs

A Patient's Medical Home will provide continuity of care, relationships, and information for its patients

A Patient's Medical Home will maintain electronic medical records (EMRs) for its Patients; Patients' Medical Homes will serve as ideal sites for training medical students, family medicine residents, and those in other health professions, as well as for carrying out family practice and primary care research;

A Patient's Medical Home will carry out ongoing evaluation of the effectiveness of its services as part of its commitment to continuous quality improvement (CQI)

Patients' Medical Homes will be strongly supported i) internally, through governance and management structures defined by each practice and ii) externally by all stakeholders, including governments, the public, and other medical and health professions and their organizations across Canada."

Primary Care Network

Primary Care Initiative. 2012. About PCI. Available at: <http://www.albertapci.ca/AboutPCI/Pages/default.aspx>

"Increasing the number of Albertans with access to primary care services

Managing access to appropriate round-the-clock primary care services

Increasing the emphasis on: health promotion, disease and injury prevention, care of patients with medically complex problems, care of patients with chronic disease

Improving coordination of primary health services with other health care services including hospitals, long-term care and specialty care services

Fostering a team approach to providing primary health care"

Family Care Clinic

Alberta Health. 2012. Family Care Clinic Pilot Objectives and Performance Measures. Internal document.

"Provide individual and family focused, comprehensive, quality, primary health care services across the lifespan, based on population health needs; screening, care of chronic disease and complex needs;

Increase and manage 24/7 timely access to primary health care

Increase emphasis on health promotion, self-management, disease and injury prevention

Utilize a collaborative interdisciplinary team approach working to full scope of practice

Improve coordination, continuity and integration of primary health care services

Maintain accessible and efficient information systems

Monitor quality and achieve positive outcomes"
