

# Analysis of 10 years of experience in a suburban group family practice using a blended funding model

Group practices funded by alternative payment mechanisms may be more able than fee-for-service practices to accommodate patients with greater illness burdens and to minimize fragmentation of care, thus improving overall health outcomes while reducing costs.

## ABSTRACT

**Background:** The last few decades have seen significant changes in the delivery and utilization of health care in BC, including changes in health care consumer patterns and health care provider patterns. These changes are due in part to aging patient and physician populations and also to changes in preferred practice types and hours for new medical graduates. In BC, access to a family physician is limited and the delivery of comprehensive care, although widely recognized as beneficial and desirable, remains suboptimal. As part of an effort to explore primary care options, a study was undertaken to analyze and quantify the effect of an alternative payment system (blended funding model) on patient and physician behavior in a full-service group family practice in Fort Langley, BC. The blended funding model relies on a modification of the Adjusted Clinical Groups system developed at Johns Hopkins University, which utilizes age, gender,

and illness burden to categorize patients. Participating practices are reimbursed by the Ministry of Health according to median provincial expenditures for services rendered for each group.

**Methods:** Data from the practice for 2002 to 2013 were obtained using standardized quarterly and annual reports from the BC Ministry of Health. Aspects of the practice considered were the morbidity tertile of patients (high, medium, or low), outflow patterns (care obtained outside the practice), services by practitioner (assigned physician, alternate physician, allied health care worker), practice clinical encounters (visit and non-visit care), and practice population changes over time.

**Results:** Patient morbidity data revealed an increase in high tertile patients and a simultaneous decline in medium and low tertile patients. Outflow data revealed a steady decline in the use of physicians outside the practice from 2002 to 2013, with the exception of a single spike in the use

of outside physicians in 2007–2008. Data for services by assigned physician revealed that 63.0% of services were by assigned physician in 2002, and that this level remained remarkably consistent. Data for services by alternate physician revealed a similarly consistent range from 18.7% to 26.4%. Data for services by allied health care worker revealed changing levels of use over time, related to availability, but averaging 16.5%. Data for practice clinical encounters revealed a steady increase from 31 000 encounters in 2002 to 49 500 in 2013. Practice population data revealed a 14.0% decline in absolute numbers from 7200 registered patients in 2002 to 6200 registered patients in 2013.

**Conclusions:** Findings from the study indicate that patients in the

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**Fort Family Practice preferred to obtain the majority of their care from the practice 95% of the time, preferred their assigned physician approximately 60% of the time, obtained care from an alternate physician in the practice approximately 24% of the time, and obtained care from an allied health care worker approximately 16% of the time. Findings also indicate that despite a reduction in the absolute numbers of patients in the practice, there was an increase over the study period in high tertile patients with more complex care needs and an increase in services received by those patients.**

## Background

The last few decades have seen significant changes in the delivery and utilization of health care in BC. These include changes in health care consumer patterns with a growing and aging population, advances in medical technology, and the development of new and often complex treatment options. In addition, changes in health care provider patterns are evident with physicians aging and retiring without succession plans, and new medical graduates preferring different practice types and hours.

In primary care, access to a family physician remains limited. It is now estimated that 176 000 BC residents do not have a regular personal family physician.<sup>1</sup> The delivery of comprehensive care, although widely recognized as beneficial and desirable<sup>2,3</sup> remains suboptimal. The lack of physician involvement in hospital care has resulted in further fragmentation: in large urban centres family physicians are not part of the care team, while in smaller communities physicians are abandoning hospital care in increasing numbers. An example of the latter is the personal observation suggesting a marked decline in the number

of family physicians with admitting privileges at Langley Memorial Hospital, despite an 11.2% increase in the population catchment area from 2006 to 2011.<sup>4</sup> The move by full-service family physicians to limited, specialized practices, or to salaried hospitalist positions, or to administrative

among them Alberta's Primary Care Networks, Ontario's Family Health Teams, and Quebec's Family Medicine Groups. In the US a similar initiative, the Patient-Centered Medical Home, has been endorsed by all major primary care physician associations.<sup>7</sup>

In 2001, the Fort Family Practice,

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medical practices further compounds the shortage of family physicians.

In concert with these trends, a system providing episodic and semi-urgent primary care has developed. Often dubbed "walk-in care," such a system may address the issue of timely access but often fails to offer continuity of care and does not foster personal physician-patient relationships.<sup>5</sup>

Solutions have been considered and implemented.<sup>6</sup> Examples include the expanded use of community pharmacists, the promotion and utilization of nurse practitioners and other allied health care workers, and incentive programs that encourage and reward physicians providing comprehensive care to vulnerable population groups. Among these programs are the Full-Service Family Practice Initiative, the Practice Support Program, the Divisions of Family Practice in BC, and A GP for Me. In other provinces several similar initiatives are underway,

a full-service suburban group practice in Fort Langley, BC, received a federal grant to participate in the Primary Care Demonstration Project. This project sought to investigate an alternative funding mechanism for the delivery of primary care in BC. A number of primary care practices were selected based on their capacity and willingness to embrace the use of electronic medical records, allied health care workers, group care, and extended hours of operation.<sup>8</sup> Grant funds were used for necessary practice modifications. For more than a decade, the Fort Family Practice has been funded under the Alternative Payments Program utilizing a blended funding model. This model, unique to BC, relies on a modification of the Adjusted Clinical Groups (ACG) system developed at Johns Hopkins University.<sup>9</sup> Participating practices are reimbursed by the Ministry of Health based on median provincial expenditures for services

rendered for each ACG, which reflects age, gender, and illness burden. Allocated funds are prepaid quarterly, with clawback mechanisms in place to mitigate duplicate payments to practitioners outside of the recipient practices. In principle, this system operates as a non-fee-for-service (non-FFS) prepayment model, with financial incentives and disincentives to encourage service by the patient's primary provider. In practice, it decouples the *service* provided from the *funding* provided, thereby providing incentives for non-visit care, and encourages preventive care and maintenance of a healthy practice population. At the same time, it encourages practitioners and the practice to assume care of elderly patients and those with complex care needs, since such patients have a higher ACG designation and, by extension, increased median funding.

**Methods**

Data specific to the practice were obtained using standardized quarterly and annual reports from the BC Ministry of Health. Data were collected for 2002 to 2013 from reports labelled 10864\_oldformat\_xxyyYE (with the exception of a report for YE2009, which was unavailable) and for 2009 to 2013 from reports labelled 10864RPT\_xxyyYE. Aspects of the practice were analyzed and then graphed using a linear scale.

- **Patient morbidity tertile 2009 to 2013.** A measure describing morbidity by tertile (high, medium, or low) according to the Adjusted Clinical Groups system. Patients in the high tertile can be expected to require more health resources than patients in the medium or the low tertiles.
- **Outflow patterns 2002 to 2013.** A measure describing primary care services obtained from any primary care physicians outside of the practice (excluding ER or maternity

care). Outflow may be an indication of patient dissatisfaction with practice services or a response to a lack of services within the practice. Outflow can also be used as a “loyalty index”—a deduced measure based on the percentage of patients who receive all of their primary care from the practice.

- **Services by assigned physician 2002 to 2013.** A measure describing services that patients receive from their assigned practice physician.
- **Services by alternate physician 2002 to 2013.** A measure describing services that patients receive from a physician in the practice other than their assigned physician.
- **Services by allied health care worker 2002 to 2013.** A measure describing services patients receive from an allied health care worker employed in the practice, primarily a registered nurse or licensed practical nurse. This does not include services provided by office assistants and administration staff.
- **Practice clinical encounters 2002 to 2013.** A measure of all clinical encounters. These encounters are classified as visit care, including office visits, hospital visits, and nursing home visits, and non-visit care,

including telephone consultations, communications with other health care providers such as specialists, and telephone prescription renewals.

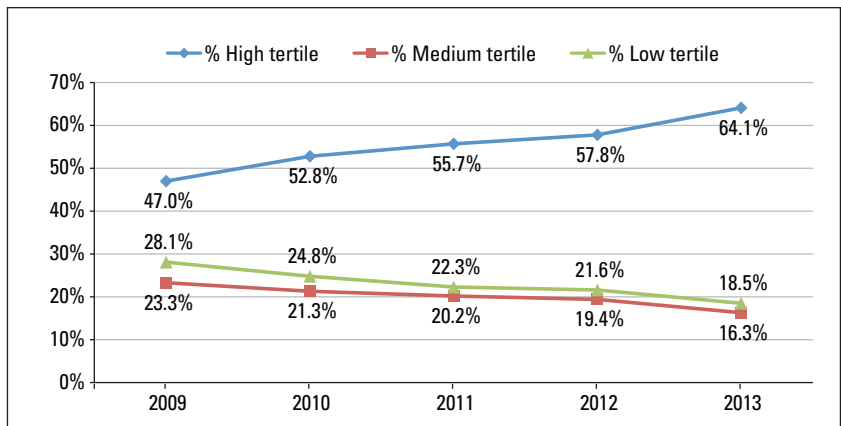
- **Practice population 2002 to 2013.** A measure describing the overall population of patients meeting the Ministry of Health criteria as regular practice patients, also known as registered patients.

**Results**

Patient morbidity data revealed an increase in high tertile patients and a simultaneous decline in medium and low tertile patients (**Figure 1**). From 2009 to 2013 the percentage of high tertile patients increased from 47.0% to 64.1%. During the same period, the percentage of medium tertile patients decreased from 23.3% to 16.3%, and the percentage of low tertile patients decreased from 28.1% to 18.5%.

Outflow data revealed a steady decline in the use of physicians outside the practice from 2002 to 2013, with the exception of a single spike in the use of outside physicians in 2007–2008 (**Figure 2**).

Data for services by assigned physician revealed a steady level of approximately 60.0%, exclusive of a spike in 2008 (**Figure 3**). In 2002,



**Figure 1.** Fort Family Practice patients by morbidity category (high, medium, low), 2009–2013.

63.0% of services were by assigned physician. This level remained remarkably consistent through 2007, then spiked to 81.0% in 2008, before reverting to 63.5% in 2010, 60.8% in 2011, 58.5% in 2012, and 66.3% for the first quarter of 2013.

Data for services by alternate physician show a similarly consistent range from 20.0% to 26.4% through 2007. Services received by patients from a physician not assigned to them dropped to 18.7% in 2008, and then returned to the more customary level of 22.9% in 2011, and increased to 25.5% in 2012. A low of 17.4% was seen for the first quarter of 2013.

Data for services by allied health care worker revealed changing levels of use over time. In 2007 and 2008 levels took a precipitous drop to 6.2% and 0.1%, respectively, after previously steady levels of 15.7% in 2004 and 17.3% in 2006. From 2010 services rendered by allied health care workers show a recovery to the previous level of approximately 16.0%.

Data for practice clinical encounters revealed an overall increase from 31 000 encounters in 2002 to 49 500 in 2013, representing an increase of 59.7% (Figure 4).

Practice population data revealed a 14.0% decline in absolute numbers

of registered patients from 7200 in 2002 to 6200 in 2013, and a decline in the number of patients per physician in the practice (Figure 5).

### Conclusions

Data from the Fort Family Practice reveal interesting trends in patient morbidity, outflow patterns, services by practitioner, clinical encounters, and registered patient numbers.

### Patient morbidity

The overall increase in high tertile patients, with corresponding declines in medium and low tertile patents, might be explained by increasingly

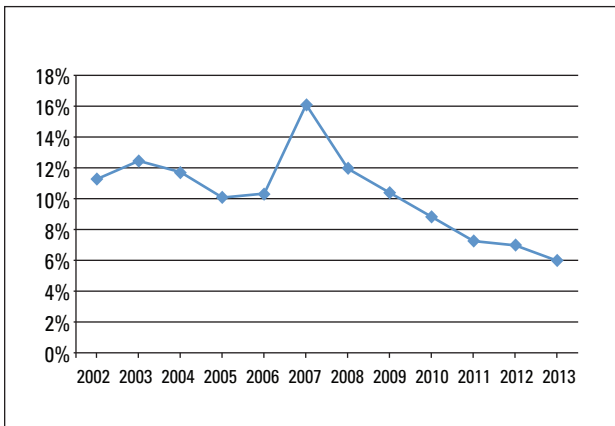


Figure 2. Fort Family Practice outflow (patient use of physicians outside of practice), 2002–2013.

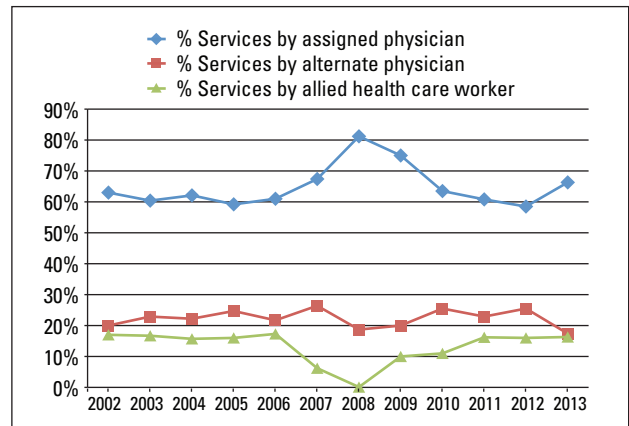


Figure 3. Services provided by practitioner at Fort Family Practice, 2002–2013.

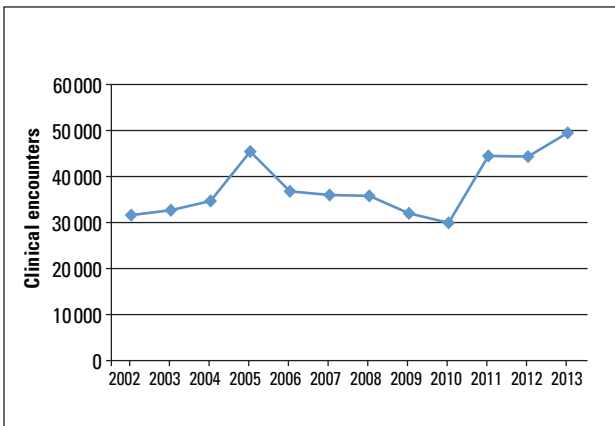


Figure 4. Clinical encounters for Fort Family Practice, 2002–2013.

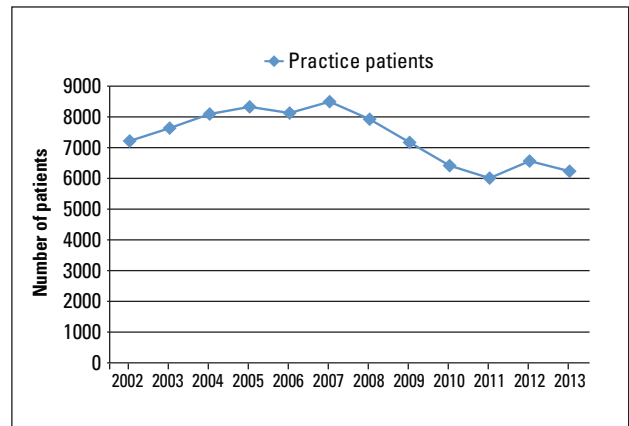


Figure 5. Practice population of Fort Family Practice, 2002–2013.

accurate diagnostic coding within the practice, and a more complete capture of individual patient health details. It is also possible that the practice has assumed care of sicker patients over time, and that this accounts for the expansion of the high tertile patient group. This finding may also be explained by the aging of existing

amount of care was provided by each patient's assigned physician (60.0% to 65.0%).

The year with the greatest outflow (16.0%) coincided with the departure of two physicians from the practice, but even this outflow remained below the provincial average, suggesting that patients may develop loyalty to

**These findings suggest that family practices funded by alternative payment mechanisms and operating as group practices may be more able than FFS practices to accommodate high tertile patients with greater illness burdens, to minimize fragmentation of care, and to improve overall health outcomes for patients while reducing costs.**

patients and an increase in their illness burden, moving these patients, in effect, from medium or low tertiles to the high tertile. Certainly, discussions with practitioners in the Fort Family Practice suggest there is increasing patient complexity, which contrasts sharply with other practices in BC. According to a recent study by McGrail and colleagues,<sup>5</sup> only 24.0% of BC primary care physicians care for patients with complex needs by acting as "most responsible" physicians. More commonly, physicians can be identified as "low responsibility" practitioners.

#### **Outflow patterns**

Remarkably few patients sought primary care from practitioners outside the practice group during the study period, and a remarkably consistent

a group practice and see it as their medical home despite the departure of their assigned physician. If patients do in fact prefer care from a closely aligned group of physicians, this may be an argument in support of group practices.

Haggerty and colleagues have noted that longitudinal and relationship-based care result in improved health outcomes and lower morbidity and mortality rates.<sup>10</sup> The costs to the system, although less well documented, are likely similarly reduced. It stands to reason that unnecessarily repeated investigations, referrals, and office visits are reduced in the situations where the patient is well known to the physician or the practice, and information and results are centralized and readily accessible.

#### **Service by practitioner**

Service by practitioner was very consistent over the study period, with approximately 60.0% of services being provided by the patient's assigned physician, 24.0% by an alternate physician in the practice group, and 16.0% by an allied health care worker (RN or LPN). Many variables could account for this, among them availability of the preferred physician, availability of an allied health care worker, and differing allocation of tasks within the practice.

The precipitous drop in allied health care worker utilization from 2007 to 2009 is not an unexpected finding given the departure of the RN from the practice at that time and the relocation of two practice physicians. Following the staff changes, there was a commensurate increase in services provided by each patient's assigned physician (to 81.2%) and a reduction of crossover services by alternate physicians (to 18.7%). This suggests that the departure of the allied health care worker resulted in a significant increase in the workload of each patient's assigned physician. Resumption of allied health care worker services in 2010 resulted in a gradual restoration of the more conventional proportion of services by practitioners.

#### **Practice clinical encounters**

The significance of a 27% increase in clinical encounters over the study period is difficult to determine. However, given the increase in patient complexity, it may be that the greater number of high tertile patients required more services. Indeed, there is abundant evidence that sicker patients consume more services. It would be of interest to know whether the increase in services at the primary care level has an effect on hospitalization and morbidity rates. Unfor-

tunately, no data on such trends are available, although discussion with the local hospital suggests that Fort Family Practice patients are under-represented in emergency and medical admission data. Determining the accuracy of this anecdotal evidence could support the use of the shared model of care for lowering admission rates.

### Practice population

The overall decline in registered patients from 2002 to 2012 and the decline in the number of patients per physician may have resulted from the increase in high tertile patients in the practice, as well as the increase in services per practitioner per patient year. The increased complexity of care required by existing patients mitigates the acceptance of new patients in the practice. Changing patterns of practice may also have played a role, as physicians might have decided to limit their patient numbers, hours, or both depending on a variety of professional, personal, and family imperatives. It is also possible that the practice's blended funding model (a variation of capitation payment) presented a disincentive to expand the patient roster.

### Study implications

In summary, the study found that patients preferred to obtain the majority of their care from the practice 95.0% of the time, that patients preferred their assigned physician 60.0% of the time, that they obtained care from an alternate physician in the practice 24.0% of the time, and that they obtained care from an allied health care worker 16.0% of the time. The study also found a reduction in the absolute numbers of registered patients and an increase in services received by these patients, possibly as a result of the increase in patient complexity seen over the study period.

While there is no comparative data to suggest that similar trends do not apply to fee-for-service practices, these findings suggest that family practices funded by alternative payment mechanisms and operating as group practices may be more able than FFS practices to accommodate high tertile patients with greater illness burdens, to minimize fragmentation of care, and to improve overall health outcomes for patients while reducing costs. If so, this would be in accordance with the Triple Aim, a framework developed by the Institute for Healthcare Improvement that describes an approach to optimizing health system performance:

1. Improving the patient experience of care (including quality and satisfaction).
2. Improving the health of populations.
3. Reducing the per capita cost of health care.

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### Competing interests

None declared.

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