

British Columbia Ministry of Health Services and the General Practice Services Committee

Evaluation of the Full Service Family Practice Incentive Program and the Practice Support Program

Synthesis Report for Work Completed to June 2013

Prepared by

Marcus J. Hollander, PhD

June 2013

This report has been prepared by Hollander Analytical Services Ltd. for the project funded by the BC General Practice Services Committee. The authors are solely responsible for the content of the report. The opinions expressed are those of the authors and do not necessarily reflect the views or policies of the GPSC, the BC Ministry of Health Services or the British Columbia Medical Association.



Hollander Analytical Services Ltd.
300 – 895 Fort Street
Victoria, BC, V8W 1H7

Tel: (250) 384-2776
Fax: (250) 389-0105
info@hollanderanalytical.com

EXECUTIVE SUMMARY

Introduction

This report constitutes a synthesis of findings from the evaluation of the Full Service Family Practice Incentive Program (FSFPIP), and the Practice Support Program (PSP) for the General Practice Services Committee (GPSC). This was a multi-year, multi-component evaluation that used a mixed methods approach of both quantitative and qualitative analysis.

This report provides a synthesis and highlights of findings for the evaluation of GPSC activities to June 30, 2013. The main focus of the report is on recent findings. An earlier synthesis report of the evaluation was submitted to the GPSC in June 2009. Some relevant material from that report is also included in this report, as appropriate.

This report provides an overview of the overall research design for the evaluation, including its structure and process. One of the key issues discussed is whether the funding for the GPSC is an expense or an investment. It is noted that, for an analysis of quantitative data we use the concept of cost avoidance. We also explain how cost avoidance can be translated into actual savings.

Uptake

The first evaluation question was whether or not GPs accepted, and participated in, the new program of incentive payments. What was the pattern of uptake by GPs across BC of the payment incentives? A key methodological issue regarding uptake was to define which GP was a full service family doctor, the target for incentive payments.

Considerable work was undertaken to try to determine what would be a reasonable definition of a full service family practitioner (including part-time GPs). Several approaches were developed and it was determined that while there is no way to definitively identify who is, and is not, a family physician, a best estimate was that a family physician was someone who had at least 50 Majority Source of Care (MSOC) patients. MSOC patients are patients who received at least three GP services in one year and who had one GP provide at least 50% of these services.

If one looks at all GPs (including hospitalists and emergency room GPs) the uptake looks fairly mediocre. If one uses a base of “regular” family physicians who have at least 50 MSOC patients the results, with some exceptions, look quite positive. The overall uptake (defined as having billed for at least one incentive in the year) for all GPs was 73.9%, while it was 93.9% for the “regular” GPs.

The uptake by full service GPs for chronic diseases was 88.7% in fiscal 10/11 (diabetes 86.6%, chf 61.1%, hypertension 83.0% and COPD 63.5%). The uptake for the non full service GPs was much lower. For example, the uptake for all chronic disease was 11.9%. In terms of other conditions, the uptake for complex care and mental health were 77.5% and 65.2%, respectively.

Attachment to Practice

A key new finding from our program of research was that there is an inverse relationship between attachment to practice (defined as the % of all GP services provided by the practice which provided the most services) and costs. This is a key finding in and of itself, but there is more. It appears that there is also a relationship between attachment and the use of incentives. The hypothesis is that as GPs use more incentives to provide “better” (guidelines based) care over time their patients feel that they are getting improved care. This, in turn, results in fewer visits to drop in clinics and emergency departments. With the use of incentives GPs and their patients build a stronger relationship. Both of these factors result in patients receiving more of their care in their GPs practice. Again, at this point this is simply a hypothesis but there does seem to be some data to support this hypothesis. Both patterns, the inverse relationship between attachment and costs, and the relationship between attachment and incentives are discussed below.

The inverse relationship between attachment and costs can be seen in the following table:

The Relationship Between Patient Attachment and Costs for Chronic Conditions

Attachment to Practice	Average Total Costs							
	Diabetes		CHF		COPD		Hypertension	
	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
1. Less than 40%	12,001	14,903	24,874	27,544	15,643	17,344	7,800	7,712
2. 40-59%	8,041	8,520	16,795	17,957	11,664	11,439	5,298	4,838
3. 60-79%	6,334	6,348	12,744	12,770	9,279	8,783	4,263	3,767
4. 80-89%	4,552	4,521	8,938	9,143	6,735	6,542	3,194	2,809
5. 90% or more	3,229	3,325	5,513	5,570	4,338	4,181	2398	2,082

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11

Chronic Disease Cost Avoidance

The comparative, adjusted cost avoidance for six chronic conditions, by condition, is presented in the table below.

Overall Cost Avoidance Adjusted by Age, Gender, RUB and Attachment Level (Fiscal 2010/11)

	Diabetes	CHF	COPD	Hypertension	Complex Care	Depression
Total Dollar Savings/Cost Using Adjusted Rates Excluding Incentives	-3,068,294	3,716,020	15,558,305	61,860,252	8,581,102	20,911,135
Total Cost of Diabetes Incentives	-21,632,125	-2,510,250	-4,636,805	11,525,650	-47,508,168	-7,364,444
Net Dollar Savings/Cost	-24,700,419	1,205,770	10,921,500	50,334,602	-38,927,168	13,546,692

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

Given a high proportion of patients with co-morbidities it is not now clear what the costs are for a given condition. For example, for diabetes for fiscal 10/11, there were a total of 238,702 patients; of these only 146,701 patients only had diabetes. Thus, over 92,000 patients had a combination of diabetes with complex care, CHF, COPD and/or hypertension. Costs can vary by different combinations of conditions. For example, the costs would be higher for patients with diabetes and CHF compared to patients with diabetes and hypertension. This is why our analysis moved to an analysis of person centred care which places patients into one, and only one, grouping of morbidities (e.g., diabetes only, diabetes and hypertension).

While cost avoidance is variable across conditions, incentives seem to be beneficial when it comes to the use of acute care services. Patients who received incentive based care had, for example, fewer: hospital days per 1,000 patients; re-admission rates; and average lengths of stay.

Person Centred Care

Given that the findings from single disease analyses have become more difficult to interpret we conducted a person focused analysis. We clustered patients into the 11 most common clusters of chronic disease conditions. Each patient can only be in one cluster. Thus, cost avoidance results are additive across clusters. In developing the clusters we looked at a wider range of chronic conditions/procedures, for which there are registries in British Columbia.

The following table shows that on an overall basis not only were the costs of incentive payments recouped but there was additional cost avoidance, over and above the costs of the incentives of some \$49 million in Fiscal 2010/11.

It should be noted that cost avoidance presented is based on incentives for chronic conditions. This analysis does not include incentives for maternity services as these were developed to stop the decline of physicians doing obstetrical and maternity care and thus, cost avoidance was not an issue. The data also do not include incentives for mental health, although the depression analysis indicates a cost avoidance of some \$10M. Conferencing fees are also not included but the overall costs were quite modest, at a total expenditure of \$2.2 million for fiscal 2010/11. The cost for obstetrical incentives was \$8.3 million.

Annual Cost Avoidance for Fiscal 2010/11

Groups	Cost Avoidance
Stroke Combos	28,929,587
Hypertension Only	17,488,072
Chronic Kidney Disease Combos	6,125,016
Arthritis and Hypertension	6,000,544
CHF Combos	5,756,726
IHD Combos	-1,261,312
Diabetes Only	-2,466,834

(cont'd)

Groups	Cost Avoidance
Diabetes Plus Hypertension Only	-3,258,269
Chronic Respiratory Combos	-3,873,828
Diabetes Plus Others	-4,259,810
	49,179,893

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

Survey of Family Practice Residents

As part of the evaluation of the Full Service Family Practice Incentive Program, a survey was conducted with family practice residents to determine their familiarity with the various initiatives. The survey was distributed to approximately 220 family practice residents throughout the province; 71 were completed and returned to the researchers, for an overall response rate of 32.3%. The findings indicate that over 94% of survey respondents (first and second year family practice residents) expect to pursue full service family practice (with or without obstetrics) in the long term.

Survey of GPs

As part of the evaluation of the Full Service Family Practice Incentive Program, surveys were sent to family physicians who were billing for incentive payments as well as those who were not billing for the payments. All family physicians identified as such in the Ministry of Health database as of July 1, 2011 were included in the sampling frame. Physicians who were identified as not currently doing family practice, retired, inactive, or out of province were eliminated from the sample.

The physicians were placed in one of 11 groups. For 10 of these groups, placement was based on the number of incentive payments the physicians had billed in fiscal 2010/2011 as well as the number of MSOC patients they had. Physicians in the maternity group needed to provide both pre- and post- natal care, to do deliveries, and to have done more than five deliveries in fiscal 2010/2011. To ensure that physicians were identified for only one group, physicians in the non-biller group were selected first, followed by physicians in the maternity group. Physicians in the various billing groups were selected last. Physicians in the medium biller/low attachment and high biller/low attachment groups were subsequently eliminated from the study as there were very few physicians in both of these groups.

The Physician Survey examined three groups of physicians – those who had billed for incentive payments (billing physicians), those who provided pre- and post- natal care and had billed for maternity incentive payments (maternity physicians), and those who had never or rarely billed for incentive payments (non-billers).

Physicians in the high biller/high attachment group generally provided more positive ratings than respondents in the other groups regarding the impact of, the effectiveness of, and their satisfaction with, the incentive payments. With respect to benefits and challenges, over 60% of respondents in the medium and high biller groups indicated that while the incentive payments

had increased their income and improved patient care, billing for the incentive payments had also resulted in increased paperwork.

Respondents in all of the groups felt that the incentive payments had had a positive impact on themselves, patient care, and family practice in general. They felt that the incentive payments had: enabled them to feel that their training, knowledge and experience are recognized; increased their ability to take care of their patients and provide continuity of care; and improved family practice in general. Over 60% of respondents in most of the billing groups felt the incentive payments were somewhat or very effective in recognizing the time and effort needed to provide care to patients and in improving both the continuity and quality of care for patients. Finally, over 67% of respondents in all of the billing groups indicated they were somewhat or very satisfied with the incentive payments.

While some of the maternity physicians limited their practice to maternity patients, the majority (91%) indicated that they provided care to both maternity and non-maternity patients. Over 70% of maternity physicians felt the incentive payments had had a positive impact on their practice, patient care and family practice in general.

Approximately 63% of the non billing GPs indicated they were not eligible to bill for the incentive payments. With respect to demographic characteristics, the non-billing physicians were generally like the physicians in the billing groups except they were likely to work as locums, consultants, emergency room physicians and/or hospitalists.

Survey of Patients

As part of the evaluation of the Full Service Family Practice Incentive Program, surveys were sent to patients in BC regarding health care services provided by their family physicians who were non-billers, or low, medium or high billers of various incentive payments.

Comparisons among MSOC patients of physicians who were low, medium and high billers of incentive payments indicated that most of the significant differences were between patients in the high and low biller groups.

- Compared to patients in the low biller group, patients in the high biller group:
 - Were more likely to have physicians who have group practices, and less likely to have physicians who work in walk-in clinics;
 - Were more likely to have been with their physician longer;
 - Were more likely to have seen fewer doctors in the last 12 months;
 - Provided more positive ratings regarding their doctor's knowledge of their medical history and their values and beliefs;
 - Were more likely to feel they were partners with their doctor; and
 - Indicated they had greater confidence in their doctor.

MSOC and non-MSOC patients of physicians in the medium volume group were similar with respect to various demographic variables. However, compared to MSOC patients, non-MSOC patients:

- Had visited more doctors in the last 12 months;
- Were more likely to go to emergency to obtain a prescription renewal;
- Provided more negative ratings regarding their doctor’s knowledge of their medical history;
- Were less likely to feel they were partners with their doctor regarding their own health;
- Provided more negative ratings regarding their doctor’s explanations about what they could do to improve their own health; and
- Were less likely to recommend their doctor to family members or friends.

The Practice Support Program

The findings regarding the PSP Learning Modules were generally quite positive across modules and across time for the following modules: Advanced Access/Office Efficiency, Patient Self Management/Group Medical Visits/Health Literacy, Chronic Disease Management, Shared Care (COPD), End of Life, Child & Youth Mental Health, and Adult Mental Health. For example, over 90% of respondents in each module agreed or strongly agreed that the material presented in the module was clear and informative and that the facilitators were well informed and knowledgeable. Also, across the modules 80% to 100% agreed that attending the learning module had improved the GP’s practice and 87% to 95.8% agreed that they had implemented changes to their practice based on the learning module.

In terms of the Advanced Access Learning Module, the following table shows that there were significant reductions in wait times after GPs completed the module. For example, the average wait time reduction for all GPs (including those who had not reduced their wait times) was reduced by 2.75 days (from 4.33 days to 1.58 days) for the third next available appointment. The corresponding reduction for GPs who had reduced their wait times was 4.15 days (from 5.66 to 1.51 days). With these results some 67.9% of GPs reported that they had been able to reduce their patient backlog.

Means (M) and Standard Deviations (SD) for Estimated Wait Times (in Days) Before and After Completion of the Advanced Access Learning Module (All Data Combined)

	Wait Times (Days) for Urgent Appointments				Wait Times (Days) for Regular Appointments				Wait Times (Days) for Third Next Available Appointment			
	N	M	SD	Sig.	N	M	SD	Sig.	N	M	SD	Sig.
All GPs – Before	222	1.27	2.36	**	221	4.98	4.99	**	209	4.33	5.69	**
All GPs – After	222	0.41	0.66	p<.001	221	2.46	2.85	p<.001	209	1.58	2.44	p<.001
GPs Who Reduced Wait Times – Before	90	2.56	3.23	**	136	6.45	5.24	**	142	5.66	6.17	**
GPs Who Reduced Wait Times – After	90	0.39	0.61	p<.001	136	2.17	2.18	p<.001	142	1.51	1.79	p<.001

After completing the Patient Self Management and Group Medical Visits module, high percentages of GPs (88.8%) agreed that they were confident helping their patients adopt self managed care and that they were partners with their patients in their patients' care (92.7%). The GPs' perceptions that their patients liked the patient self-management (PSM) approach were also generally high, with most GPs indicating that their patients: were satisfied with their care (68.0%); seemed to be more involved in their own care (74.4%); liked setting and tracking their self-management goals (75.8%); and overall liked the PSM approach (73.7%).

Large majorities of GPs agreed that they felt comfortable conducting Group Medical Visits (GMV) (74.8%) and the impact on their patients was positive (e.g., 80.5% agreed that their patients liked the peer learning they are exposed to in the context of group medical visits.)

There were no end of module surveys for the chronic disease management learning module in fiscal 2010/11. The data presented here are for the four years to the end of March 2010. The CDM module went through some changes over the years. It has been a stand alone module and has also been combined with GMV and PSP into a module called CDM++

Over the first four years, large percentages of physicians who attended the CDM stand-alone (87.4%) and the CDM++ combination (88.9%) learning modules agreed or strongly agreed that attending the module had allowed them to take better care of their patients with chronic disease. Attending the module had helped them to identify patients with chronic disease (84.4% in both modules agreed or strongly agreed) and prompted them to develop a CDM patient registry (82.9% and 88.9% agreed). Slightly lower, but still high, percentages agreed or strongly agreed that their patients seemed more satisfied with care (62.3% and 68.9%), prompted them to actively consider CDM guidelines in care delivery (56.1% and 72.8%) and generally increased their satisfaction with work (56.1% and 72.8%).

The GPs unanimously agreed/strongly agreed that the Shared Care (COPD) Learning Module had helped them improve their practice and that attending the module had increased their knowledge and awareness of community resources for COPD patients. Large percentages also agreed that they had improved patient care (94.4%) and that participating in the module had a positive impact on their practice (83.3%). Half of the GPs also agreed that their collaborations with other health care providers (HCPs) had improved.

More generally, a large percentage of GPs agreed/strongly agreed that: they were able to use what they had learned in their practice (94.4%) and that they had implemented changes based on the learning module (94.4%). This finding is also consistent with other PSP learning modules. Two-thirds of respondents agreed that the module had provided valuable insights about practice-based quality improvement. In terms of the general impact of the PSP program, 66.7% of all GPs attending the module agreed or strongly agreed that the broader PSP initiative has made them feel more connected to other family physicians.

We had 18 months of data for the End of Life Learning Module so data were available from the baseline survey, the end of module survey and the 3-6 month follow up survey. Patient experience surveys were not administered due to the sensitive nature of this topic and the fragility of the patients involved.

At the completion of the learning module, an increased percentage of GP offices had developed a registry for patients with EOL concerns (an increase from 8% of GPs at baseline to 67% at end of module). An increased percentage of GPs also followed the most recent clinical guidelines for palliative care (an increase from 62% at baseline to 88% at module completion).

At the end of the EOL module, 96% to 100% of the GPs (increased from 79% to 87% at baseline) were confident in: identifying patients who may benefit from palliative approach to care; initiating a conversation about end-of-life care with a patient and his/her family; guiding the patient with regards to his/her goals of care at the end of life; communicating their patient's needs and wishes to other care providers, as appropriate; and supporting a patient during the terminal phase of his/her illness and address his/her concerns.

At 3-6 months after completing the EOL module a lower percentage of the GPs had a registry for patients requiring EOL care (52%, compared with 67% at the end of the module), indicating that some "early adopters" stopped using it. However, increased percentages of GPs had an action plan (84%, up from 68% at module completion) and followed the most recent clinical guidelines (94% from 88%). Participation in collaborative care with HCNs had increased over time (percentage of GPs increased to 90%, and frequency of collaborations within individual GPs increased).

Increases in GPs' confidence ratings on a range of activities related to providing mental health care to children and youth in their practices were noteworthy. The following presents information on ratings on the baseline versus end-of-module surveys for GPs. The percentage of GPs who rated their confidence in identifying children and adolescents at risk as high/very high rose from 25.1% and 35.0% (respectively) at baseline to 61.4% and 70.4% at module completion. Also, providing guidance/information rose from 19.7% of GPs at baseline to 68.2% at module completion.

- Screening children and adolescents for the three major mental illnesses rose:
 - From 25.1% of GPs at baseline to 84.1% at module completion for depression;
 - From 19.7% to 70.5% for ADHD; and
 - From 20.2% to 84.1% for anxiety.
- Treating children and youth for the three major mental illnesses rose:
 - From 8.6% to 38.6% for using medications; and
 - From 5.6% to 36.4% using psychotherapeutic interventions.
- With regard to communications and collaborations, the GPs' confidence also rose:
 - From 38.9% to 79.6% for communicating their patient's needs to other mental health care providers, as appropriate;
 - From 24.3% to 54.6% for communicating their patients needs to community partners (e.g., school counsellors), as appropriate;
 - From 19.1% to 50.0% for collaborating with community partners; and
 - From 44.3% to 75.0% for referring their young patients to specialists, as appropriate.

The data presented here relate to the Adult Mental Health Learning Module and cover a three and a half year period. In terms of impact, it was found that there was high agreement that attending the module had improved the GPs' practices (89.5%); patient care (89.7%); and GPs' knowledge about AMH resources in the community (82.3%).

It was found that after completing the module GPs had high confidence in their abilities to: diagnose depression (99.8%); treat depression (98.9%); prescribe medications for mental health concerns (96.2%); assess their patients' problems and strengths (92.9%); develop systematized care plans (78.3%); offer and coach the Antidepressant Skills Workbook (80.8%); and treat mental health disorders other than depression (84.5%). Patients' ability to return to work following cognitive behavioural interventions was rated better/much better by 66.7% of GPs. Patients' ability to continue to work (with cognitive behavioural interventions) while experiencing mental health problems was rated better/much better by 81.4%.

It appears, based on the data, that the Full Service Family Practice Program and the Practice Support Program have been, and continue to be, successful primary care initiatives. There is solid evidence of cost avoidance as a result of the use of incentive based care by GPs. There is also evidence that the increased use of incentives is related to increasing patient attachment, or the continuity of care. This in turn is related to reductions in the costs of care. Also, the more GPs use the incentives the more likely they are to have a positive impression of the GPSC and its initiatives, and patients of high billing GPs have a better relationship with their GPs.

Finally, for the PSP, the evaluation results are consistently positive across types of learning modules and over time. The PSP seems to be a major success story for the GPSC.

Table of Contents

Executive Summary	i
1. Introduction	1
1.1 Introduction to this Report	1
1.2 Context and Background Regarding GPSC	1
1.3 Introduction to the Evaluation.....	2
2. An Overview of the Hollander Analytical Approach to Evaluation.....	3
3. A Key Issue: Are Funds Expended in Primary Care Renewal an Expense or an Investment...4	
4. Evaluation of Incentive Payments: Analysis of Administrative Data	6
4.1 Introduction	6
4.2 Methods.....	6
4.3 Did People Come to the Party: Data on the Uptake of the Incentive Payments	8
4.4 Key Findings From the Evaluation of Incentive Payments.....	11
4.4.1 Attachment and Incentives.....	11
4.4.1.1 Introduction.....	11
4.4.1.2 The Inverse Relationship Between Attachment to a Practice and Costs	11
4.4.1.3 The Relationship Between Attachment and Incentives	12
4.4.2 Findings Related to Incentive Payments.....	14
4.4.2.1 Costs and Cost Avoidance for Chronic Conditions	14
4.4.3 Analysis of Person Focused Care	19
4.4.4 Related Topics Regarding Incentives	24
4.4.4.1 Obstetrics and Maternity Care	24
4.4.4.2 Conferencing and Palliative Care Planning.....	26
5. Key Findings From Surveys Regarding Primary Care and GPSC Initiatives	27
5.1 Introduction	27
5.2 Survey of Family Practice Residents.....	27
5.3 Survey of GPs.....	28
5.3.1 Introduction.....	28
5.3.2 Key Findings.....	29
5.3.3 Comparisons With the 2009 Survey	30
5.3.4 Policy and Program Implications.....	31
5.4 Survey of Patients.....	33
5.4.1 Introduction.....	33
5.4.2 Design and Methodology	34
5.4.3 Highlights of Findings	35
5.4.4 Comparison with the 2009 Patient Survey.....	37
5.4.5 Policy and Program Implications.....	38
5.5 Discussion of GP and Patient Surveys	38

6. Key Findings from the Practice Support Program.....	41
6.1 Introduction	41
6.2 Key Findings Regarding the Quality of the Learning Modules	44
6.3 Key Findings Regarding the Impacts and Outcomes of the Learning Modules	44
6.4 Key Findings Regarding the Specific Modules.....	47
6.4.1 Advanced Access and Office Efficiency	47
6.4.2 Patient Self-Management and Group Medical Visits	47
6.4.3 Chronic Disease Management	48
6.4.4 Key Findings Regarding the Shared Care (COPD) Module.....	48
6.4.5 Key Findings Related to the End of Life Learning Module	49
6.4.6 Key Findings Related to the Child and Youth Mental Health Learning Module.....	51
6.4.7 Key Findings Related to the Adult Mental Health Learning Module.....	52
7. Conclusion	53

Appendix A: Knowledge Development Framework

1. INTRODUCTION

1.1 Introduction to this Report

This report provides a synthesis and highlights of findings for the evaluation of GPSC activities to June 30, 2013. The main focus of the report is on recent findings. An earlier synthesis report of the evaluation was submitted to the GPSC in June 2009. Some relevant material from that report is also included in this report, as appropriate.

1.2 Context and Background Regarding GPSC

Family practice was in decline in British Columbia during the 1990s. There were many reasons for this such as the relative allocation of compensation between general practitioners (GPs) and specialists, and the fiscal restraint of the 1990s. This decline started to accelerate, and become more evident, at the turn of the decade. However, through new leadership, a more cooperative relationship was forged. One of the initiatives in this regard was the establishment of the General Practice Services Committee (GPSC) in 2002.

The GPSC is a joint committee of the BC Ministry of Health Services, the BC Medical Association and the Society of General Practitioners of BC. Members of the BC Primary Health Care Council (i.e., representatives of BC's Health Authorities) also attend as guests. The GPSC engages in a number of activities to support General Practitioners. Its operational funding and mandate are based on a formal Working Agreement between the BC government and the BCMA. The GPSC has the mandate "of finding solutions to support and sustain full service family practice in British Columbia." One of the initial activities of the GPSC was to develop new incentive payments to promote enhanced family practice. This was called the Full Service Family Practice Incentive Program (FSFPIP).

In order to better understand the decline in family practice, and to develop strategies to reverse this trend, the GPSC held consultations in 2004/05 called Professional Quality Improvement Days (PQIDS) with about 1000 GPs in BC. At that time, GPs were leaving full service family practice and/or were limiting the services they provided. The PQID consultations indicated that the exodus could be stopped if GPs felt valued, were paid appropriately for their work, and had adequate ongoing training and support to provide good care for the increasingly complex patient population that is typical for most GPs in BC. In response to the PQIDS, the GPSC established the Practice Support Program (PSP). The PSP was designed to address the "train us" and "support us" components of GPs' needs identified through the PQIDS.

The new Master Agreement between the BCMA and the Ministry of Health made provisions for a number of other committees to complement work that would previously have come under the auspices of the GPSC. These new committee and governance structures have been evolving in 2013.

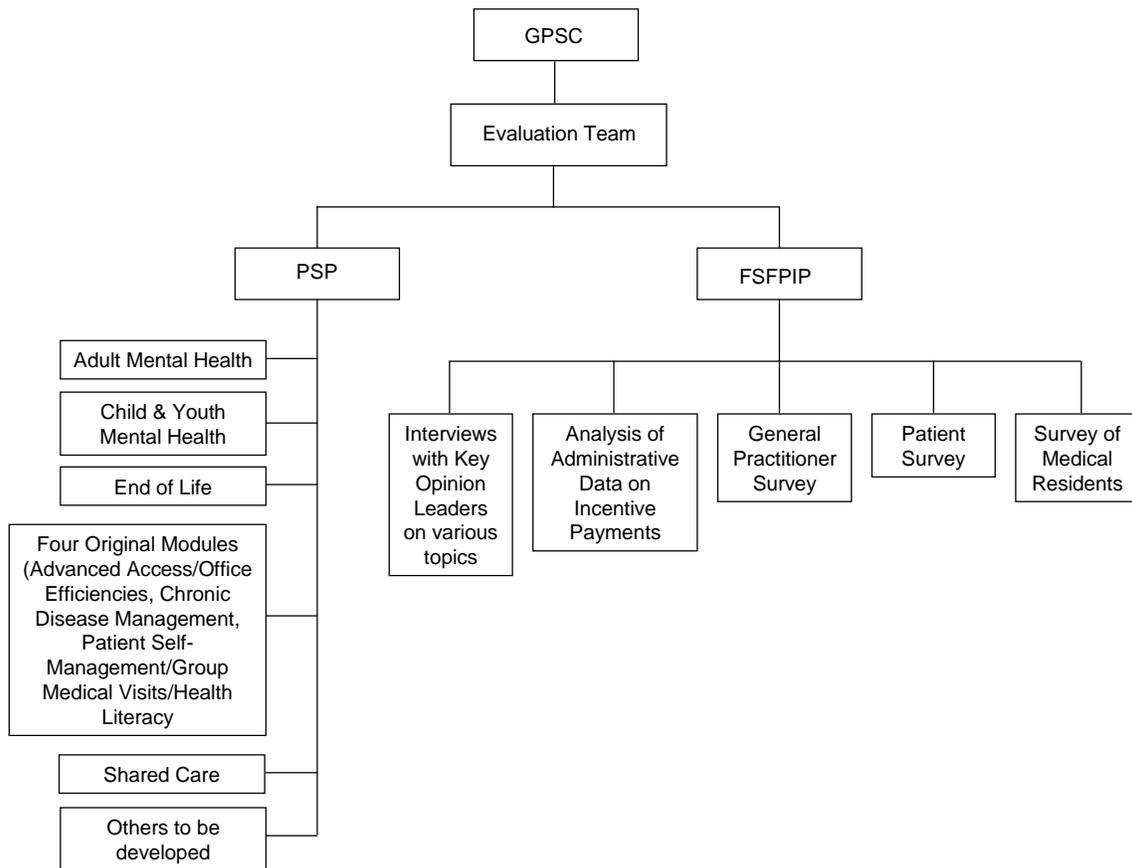
1.3 Introduction to the Evaluation

One of the requirements stipulated in the Ministry/BCMA Agreements is that GPSC activities be evaluated. Hollander Analytical Services Ltd. was the successful bidder to conduct the evaluation for the FSFPIP and PSP. Through a series of discussions with the GPSC an overall approach to conducting the evaluation of the PSP and FSFPIP initiatives was developed. It was determined that a mix of quantitative and qualitative approaches would be developed. In addition, it was decided that there would be three major areas of inquiry:

- An analysis of cost and utilization trends (based on administrative data) related to key aspects of family practice;
- Surveys of GPs and patients about GPSC activities, and family practice more generally; and
- A focus on the activities which support family physicians in their practice (the PSP initiative).

The overall outline of the activities that were to be conducted for the evaluation of the PSP and FSFPIP is presented in Figure 1.

Figure 1-1: GPSC Evaluation Design for the Full Service Family Practice Incentive Program (FSFPIP) and the Practice Support Program (PSP)



2. AN OVERVIEW OF THE HOLLANDER ANALYTICAL APPROACH TO EVALUATION

There are a range of approaches which could have been adopted to evaluate GPSC activities from simple descriptive data to randomized controlled trials (RCTs). Given that when the evaluation started the GPSC was still evolving, as it is even today, we decided on an approach that would allow us to do rigorous evaluations but to do them in such a way as to be transparent and understandable to program developers and policy makers, as well as researchers. We also wanted to provide results in a reasonably quick manner so that GPSC could review its policy and program development work based on new knowledge, specifically targeted to its needs. A relatively rapid (at least compared to academic research) research response would allow GPSC to make evidence based course corrections as needed. Based on changes, and the evolution of the GPSC the evaluation would be conducted in an iterative manner of policy choices/evaluation/re-formulation of choices/evaluation and so on. Given that the GPSC approach to primary care is relatively unique, both in Canada and internationally, knowledge transfer/translation was also seen to be a key element to explain to others the BC approach to primary care, and its relative effectiveness. The independence of the evaluation is guaranteed by the Ministry and the BCMA.

Given the above, we developed an innovative approach to our program of research. Technically, this approach can be described as Applied Rapid Response Research (R³) using an Action Research frame of reference. It is applied, rather than academic research, and it has a significant knowledge transfer/translation component. R³ refers to obtaining relatively rapid results for policy makers. Applied research and Action Research refer to the fact that the research, while conducted in a rigorous manner, is targeted at key questions/decision points for policy makers and that there is an interactive process between policy and program developers and evaluators. Knowledge transfer/translation refers to providing results in a manner that is clear and understandable to program and policy people at the GPSC, and across Canada and internationally.

A perfect example of Applied R³ is the quick evaluations we do for the PSP Train-the-Trainer (TTT) process in which we collect and process relatively large quantities of survey data at a TTT meeting (meetings sometimes have well over 100 attendees of different disciplines) and produce a report within a few weeks. The report is then used as key information and input for the next TTT meeting, or the module rollout.

With regard to incentives and the use of administrative data we use an intermediate, yet still rigorous, approach that allows non researchers to see the actual patterns of relationships for themselves in a transparent manner. Thus, we adjust for key variables which have been shown to be related to costs, i.e., age, sex, RUB level and attachment level. GPSC members can see how the results change at each step along the way. We also conduct additional analyses to further validate the findings using more sophisticated, high level analyses. An example of this is attachment. Our GPSC evaluation reports clearly show the inverse relationship between attachment and costs, across time and disease conditions. We then further corroborated this

finding in the 2009 attachment publication¹ and the current proposed publication. In both papers we consider numerous other variables which may also be related to costs, in addition to attachment, to see the relative strength of attachment, compared to the strength of all the other variables in the analysis when all variables are considered simultaneously. Attachment to practice is clearly the main predictor of costs.

Our approach to evaluation is framed in a broader Knowledge Development Framework. An overview of this Framework, and a short description of how the Framework applies to the GPSC are presented in Appendix A.

3. A KEY ISSUE: ARE FUNDS EXPENDED IN PRIMARY CARE RENEWAL AN EXPENSE OR AN INVESTMENT

In this report we show that incentive payments, overall, appear to be cost-effective. However, the critical question is does this lead to actual savings. As noted below, we argue that cost-effectiveness leads to cost avoidance which ultimately can, with appropriate policies, lead to future savings.

It is clear that significant funding has been provided to GPSC to support primary care. As noted above, there is evidence that the GPSC approach to primary care can be cost-effective and, therefore, worthy of additional funding. However, it appears, so far, that decision makers consider funds spent on the GPSC to be an additional expenditure, albeit for a worthy cause.

There are two points to make about this perception. The first point is that when one thinks about the costs of making an expenditure on something one should also consider the costs of not making that expenditure (i.e., one should conduct a risk analysis of the consequences of not taking action). There are numerous examples where expenditures were not made in a timely manner which resulted in much greater expenditures later due to a crisis or catastrophe. Thus, there are also potential costs to not taking action. Even if one considers investments in the GPSC as a simple expenditure, one should also consider the consequences of not taking action and having a continued erosion of family practice in BC (see Section 1.2), and the costs that this could engender, particularly in regard to the increased use of hospital beds and Emergency Departments.

The second point relates to looking at the funds expended on GPSC is as an investment. In this approach one usually looks for a return on investment. Our preliminary analysis indicates that it is quite likely that there is a return on investment in regard to expenditures on the GPSC. It appears that the decline in family practice has been stopped, although more research is required before one can make such a statement more definitively. Thus, the additional costs associated with a deteriorating primary care system appear to have been avoided. In addition, there are early signs that not only has the decline been stopped, but also, that an upswing has started. It also appears that patients may be getting better care based on physician perceptions, and increases in the number of MSOC patients for GPs who are high billers of incentives. However, there only appear to be relatively modest data on this from patients themselves. Nevertheless, one can infer

¹ Hollander, M.J., Kadlec, H., Hamdi, R., & Tessaro, A. (2009). Increasing value for money in the Canadian healthcare system: New findings on the contribution of primary care services. *Healthcare Quarterly*, 12(4), 30-42.

better care from the fact that GPs are able to function more effectively thanks to the PSP initiatives, and the additional time GPs can spend with patients based on the billing incentives. Thus, investments may be beginning to have the effect of providing better, and more effective care (i.e., improved outcomes).

Finally, it does appear that there may be an actual payback, at least to some degree, in regard to funding for the GPSC. While the costs for patients who received incentive based care, for a number of conditions, is higher, at RUB 3, than for patients who did not receive incentive based care, it appears that the opposite is true for patients at RUB 4 and RUB 5.

One thing which should be clarified is the reference in this report to “savings”, “lower costs”, “cost avoidance” and other similar terms. These terms are used to reflect comparative costs at the individual client level. For example, if average costs of care go down after incentive based care is introduced, other matters being equal, one can refer to a cost reduction at the client level. In this report we also use the concept of value for money which refers to overall system-level efficiency and effectiveness, that is, can one get more, or better, services or results for the same expenditure.

If one thinks in simplistic terms one can argue that there are no real savings because, for example, there are no bed closures to actually reduce annual hospital costs. This is quite true, however, it is not the whole story. If in fact there are “savings” to be obtained from GPSC activities they represent increases in systems efficiencies (i.e., greater value for money). It is highly unlikely that even the most effective innovation will result in actual annual cost savings (unless one actually cuts services elsewhere, for example, by closing hospital beds). This is because there are explicit, or implicit, waiting lists for services, such as admission to a long term care facility, surgical waiting lists and so on. Our healthcare system is not funded to operate at full capacity so that everyone can get services right away. Furthermore, the difference between actual operating capacity and optimal operating capacity is unknown, but clearly significant. Thus, for any innovation to save money in a given fiscal year, the innovation would have to be sufficiently robust to eliminate the differential between actual and optimal capacity, and overcome the tendency to provide more services when there is excess capacity (i.e., the ‘a bed built is a bed filled’ phenomenon). The innovation would have to overcome both obstacles and result in actual reductions (e.g., reductions in annual bed days in a hospital). Even this would not be enough as there are annual budgets so savings obtained part way through the year could not be realized through cost recovery mechanisms. Furthermore, if one looks at savings in the subsequent year, these would be eroded due to increases in costs to cover inflation, costs for e-health, or costs for new technology.

To make the argument that “savings” do not really exist because they cannot be realized in a given fiscal year is a spurious argument. What can be achieved is greater efficiency and effectiveness for the system as a whole. Over time, these efficiencies can be used to slow the rate of growth of future health care expenditures, if such expenditures are made in the context of a knowledge of new efficiencies, and if these efficiencies can be used as a rationale to slow the rate of increase in health expenditures. Thus, efficiencies, through innovations, have a longer term cost savings effect in regard to future costs which can be avoided as a result of these efficiencies.

In order to obtain future savings, however, one must look at the broader health care system, not just primary care. This will require the participation of the most senior decision makers, and their agreement to implement the required policies and practices. For example, if it can be shown that incentive payments can lead to cost avoidance, one can calculate the dollar equivalence between the “savings” or “cost avoidance” from primary care and expenditures for some number of hospital beds. One can then reduce the bed to population ratio for hospital beds going forward accordingly, thereby achieving actual savings on a go forward basis.

4. EVALUATION OF INCENTIVE PAYMENTS: ANALYSIS OF ADMINISTRATIVE DATA

4.1 Introduction

To date the GPSC evaluations of incentive payments have focused primarily on particular diseases for which there are registries. The focus in primary care is now shifting to a more person centred focus. In addition, as incentives have been added over time, the analysis of results have begun to be complicated by people who have multiple co-morbidities. Several years ago it made sense to conduct evaluations on diseases such as diabetes as most other chronic conditions did not have incentive payments. Now, the picture is more complex and many people have diabetes and other conditions for which there are also incentive payments. As patients with diabetes only, and diabetes and other conditions, are lumped together it is now not clear where the comparative costs are coming from when one looks at the diabetes group as a whole. It is not clear, for example, to what extent costs, for patients with or without incentives, are affected by the other conditions patients have. For example, costs would be higher if there is a high proportion of people with diabetes and chf as the average cost of chf patients is much higher than for patients who only have diabetes.

In this section we present key findings in terms of costs for patients who did, and did not, receive incentive based care. We start with the individual incentive payments and conclude with data regarding person centred care.

4.2 Methods

In order to make comparisons, one needs a consistent metric that classifies people with similar care needs in order to make apples to apples comparisons.

The British Columbia Ministry of Health uses the classification system developed by Johns Hopkins University. The main groupings in this system are ACGs (Adjusted Clinical Groups) which can be rolled up into broader groupings called Resource Utilization Bands (RUBs). The ACGs are clinical groupings which incorporate age, gender and the number and type of different diagnostic conditions the patient has. Barbara Starfield has stated that the ACG system “takes all diagnoses made on each individual in a year and combines them in such a way as to provide a ‘burden of morbidity’ pattern unique to each individual”.² The RUBs are broader

² Starfield, B. 2001. “New Paradigms for Quality in Primary Care.” *British Journal of General Practice*. 51: 303-09.

aggregates of ACGs and range from non-users (RUB 0) to the very high use category (RUB 5) (The interested reader is referred to the John Hopkins web site at <http://www.acg.jhsph.edu/html/AboutACGs.htm> for a more detail explanation of this system). This system is in wide use not only in the United States, but also, internationally.³

It should be noted that in this report we focus on people with somewhat higher care needs. Thus, the analyses in this report typically focus on people with a RUB level of 3 or higher. In order to ensure that our analysis is based on active patients, who need at least a modest amount of service, we have limited the patients in the analysis to those who have had at least five services in a given year. In addition, prior analyses have indicated that relatively few patients who received incentive based care had fewer than five GP services in a year.

Many readers of this report will have been trained in a health related discipline and will be familiar with concepts from the field of epidemiology such as age and sex standardization. Epidemiology deals with the correlates of disease in a population and most of the analysis focuses on populations. For example, one would age and sex standardize mortality rates across provinces to the population distribution of Canada as a whole to obtain, for example, Standardized Mortality Rates (SMRs).

However, many social science disciplines also adjust data to control for confounds based on differential age and sex distributions (and distributions for other key variables). Thus, epidemiological standardization is actually a sub-set of a broader concept of “Adjustment” which “encompasses both standardization and other procedures from removing the effects of factors that distort or *confound* comparison.”⁴ In our analysis we adjust for differences in age, sex, RUB level and attachment level distributions in relation to costs and utilization. However, the mathematics of standardizing for these variables is the same as for standardizing in epidemiology. The difference is that our outcome variables are not related to SMRs, or incidence or prevalence rates of a disease in a population, rather they are related to cost and utilization patterns for an experimental group and a comparison group. In this report we have used what is referred to as indirect standardization, the same approach used by the BC Ministry of Health.

³ Halling, A., G. Fridh and I. Ovhed. (2006). “Validating the John Hopkins ACG Case-Mix System of the Elderly in Swedish Primary Health Care.” *BMC Public Health* 6: 171; Lee, W-C. 2008. “Quantifying Morbidities by Adjusted Clinical Group System for a Taiwan Population: A Nationwide Analysis.” *BMC Health Services Research* 8: 153; Reid, R., L. MacWilliam, N.P. Roos, et al.. 1999. *Measuring Morbidity in Populations: Performance of the John Hopkins Adjusted Clinical Group (ACG) Case-Mix Adjustment System in Manitoba*. Manitoba: Manitoba Centre for Health Policy and Evaluation; Sicras-Mainer, A., J. Serrat-Tarrés, R. Navarro-Artieda, R. Llausí-Sellés, I. Ruano-Ruano and J.A. González-Ares. 2007. “Adjusted Clinical Groups Use as a Measure of the Referrals Efficiency from Primary Care to Specialized in Spain.” *The European Journal of Public Health* 7(6): 657-63; Sicras-Mainer, A., R. Navarro-Artieda and en representación del Grupo de estudio ACG-BSA. 2009. “Validating the Adjusted Clinical Groups [ACG] Case-Mix System in a Spanish Population Setting: A Multicenter Study.” *Gaceta Sanitaria* [Epub ahead of print].

⁴ Schoenbach, V.J. & Rosamond, W.D. (2000). *Understanding the Fundamentals of Epidemiology: An Evolving Text*. Chapel Hill, North Carolina: University of North Carolina at Chapel Hill, p. 131.

In order to derive a group of patients who were comparable, and may or may not have received incentive based care, and to exclude extreme outliers, we generally exclude:

- People at less than RUB 3.
- People who died in the year.
- People with hospital costs greater than \$100,000.
- People with billings for more than 25 payees.
- People with less than five GP services in the year.
- People who were estimated to be in a long term care facility during the fiscal year for which the analysis was conducted.

4.3 Did People Come to the Party: Data on the Uptake of the Incentive Payments

Perhaps the first evaluation question is whether or not GPs accepted, and participated in, the new program of incentive payments. What was the pattern of uptake by GPs across BC of the payment incentives? A key methodological issue regarding uptake was to define which GP was a full service family doctor, the target for incentive payments.

Considerable work was undertaken to try to determine what would be a reasonable definition of a full service family practitioner (including part-time GPs). Several approaches were developed and it was determined that while there is no way to definitively identify who is, and is not, a family physician, a best estimate was that a family physician was someone who had at least 50 Majority Source of Care (MSOC) patients. MSOC patients are patients who received at least three GP services in one year and who had one GP provide at least 50% of these services.

If one looks at all GPs (including hospitalists and emergency room GPs) the uptake looks fairly mediocre. If one uses a base of “regular” family physicians who have at least 50 MSOC patients the results, with some exceptions, look quite positive. Tables 4-1 and 4-2 present data on uptake for all GPs (5,148 in fiscal 2010/11) and “regular” GPs (3,404 in fiscal 2010/11). One can see from Table 4-1 that the overall uptake (defined as having billed for at least one incentive in the year) for all GPs was 73.9%, while it was 93.9% for the “regular” GPs. The incentives came into force in different years. The cells with “0” represent cells for a time period in which the incentive in question had not yet been adopted. As can be seen in Tables 4-1 and 4-2, the uptake has been reasonably good for most incentives. However, the GPSC may wish to consider whether improvements could be made to the Heart Disease (chf) incentive (see Table 4-2) to promote greater uptake. Finally, the uptake for obstetrics seems low but incentives are billed for almost all deliveries. Thus, among GPs who do deliveries the uptake is actually quite high. However, only a minority of GPs are currently doing deliveries.

The analyses presented in this section are based on all GPs. Thus, the screens we use in our patient based analyses (see section 4.2) were not used in the analysis of uptake.

Table 4-1: Percentage of GPs Billing for Various Incentives Over Time: Fiscal 2003/04 to 2010/11

		% Using Incentives							
		Any Incentive	Chronic Disease	Complex Care	Obstetrics	Prevention	Conference	Mental Health	Palliative Care
All	Year								
	2003/04	41.0	33.6	0.0	17.0	0.0	0.0	0.0	0.0
	2004/05	49.1	42.9	0.0	18.2	0.0	0.0	0.0	0.0
	2005/06	60.4	55.9	0.0	17.5	0.0	0.0	0.0	0.0
	2006/07	66.8	61.5	0.0	17.1	0.0	30.5	0.0	0.0
	2007/08	71.7	64.6	52.9	16.8	52.5	41.6	23.3	0.0
	2008/09	71.5	63.7	52.3	16.7	52.2	39.9	37.8	0.0
	2009/10	71.1	62.6	51.9	15.8	53.6	38.1	41.9	13.7
	2010/11	73.9	62.7	53.8	15.3	57.9	44.5	46.6	19.1
Group	Year								
Full Service	2003/04	54.1	45.6	0.0	21.7	0.0	0.0	0.0	0.0
	2004/05	65.4	58.8	0.0	23.2	0.0	0.0	0.0	0.0
	2005/06	80.6	76.2	0.0	22.4	0.0	0.0	0.0	0.0
	2006/07	87.5	83.8	0.0	21.6	0.0	41.4	0.0	0.0
	2007/08	92.2	87.5	73.4	21.2	72.0	56.2	32.7	0.0
	2008/09	92.9	87.9	73.8	21.0	72.1	53.9	52.4	0.0
	2009/10	92.6	87.9	74.6	20.0	74.0	52.4	58.2	19.7
	2010/11	93.9	88.7	77.5	19.3	79.4	58.6	65.2	27.3
Other	2003/04	8.6	4.1	0.0	5.4	0.0	0.0	0.0	0.0
	2004/05	11.1	5.8	0.0	6.5	0.0	0.0	0.0	0.0
	2005/06	15.1	10.0	0.0	6.5	0.0	0.0	0.0	0.0
	2006/07	21.6	12.9	0.0	7.2	0.0	6.8	0.0	0.0
	2007/08	27.4	14.9	8.6	7.3	10.4	10.3	3.0	0.0
	2008/09	27.0	13.3	7.7	7.7	10.9	11.0	7.5	0.0
	2009/10	27.4	11.1	5.7	7.1	12.3	9.1	8.7	1.6
	2010/11	34.9	11.9	7.7	7.5	16.0	17.0	10.2	3.2

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

Table 4-2: Percentage of GPs Billing for Chronic Disease Management Incentives Over Time: Fiscal 2003/04 to 2010/11

		% Using Incentives				
		Chronic Disease	Diabetes	Heart Disease	Hypertension	COPD
All	Year					
	2003/04	33.6	33.4	18.1	0.0	0.0
	2004/05	42.9	42.7	20.7	0.0	0.0
	2005/06	55.9	55.6	27.2	0.0	0.0
	2006/07	61.5	59.4	33.3	47.0	0.0
	2007/08	64.6	62.5	40.8	57.4	0.0
	2008/09	63.7	61.6	40.2	57.3	0.0
	2009/10	62.6	60.2	40.5	57.4	36.1
	2010/11	62.7	60.1	41.3	58.1	43.2
Group	Year					
Full Service	2003/04	45.6	45.3	25.1	0.0	0.0
	2004/05	58.8	58.6	29.0	0.0	0.0
	2005/06	76.2	76.0	38.0	0.0	0.0
	2006/07	83.8	82.0	47.4	65.3	0.0
	2007/08	87.5	85.9	57.9	78.8	0.0
	2008/09	87.9	86.5	57.9	80.3	0.0
	2009/10	87.9	86.1	59.4	81.7	52.7
	2010/11	88.7	86.6	61.1	83.0	63.5
Other	2003/04	4.1	4.1	0.7	0.0	0.0
	2004/05	5.8	5.6	1.3	0.0	0.0
	2005/06	10.0	9.6	2.6	0.0	0.0
	2006/07	12.9	10.1	2.4	7.0	0.0
	2007/08	14.9	11.9	3.7	11.0	0.0
	2008/09	13.3	9.7	3.3	9.7	0.0
	2009/10	11.1	7.5	2.2	7.9	2.4
	2010/11	11.9	8.4	2.6	9.5	3.6

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

4.4 Key Findings From the Evaluation of Incentive Payments

4.4.1 Attachment and Incentives

4.4.1.1 Introduction

A key new finding from our program of research was that there is an inverse relationship between attachment to practice (defined as the % of all GP services provided by the practice which provided the most services) and costs. This is a key finding in and of itself, but there is more. It appears that there is also a relationship between attachment and the use of incentives. The hypothesis is that as GPs use more incentives to provide “better” (guidelines based) care over time the patients feel that they are getting improved care. This, in turn, results in fewer visits to drop in clinics and emergency departments. With the use of incentives GPs and their patients build a stronger relationship. Both of these factors result in patients receiving more of their care in their GPs practice. Again, at this point this is simply a hypothesis but there does seem to be some data to support this hypothesis. Both patterns, the inverse relationship between attachment and costs, and the relationship between attachment and incentives are discussed below.

4.4.1.2 The Inverse Relationship Between Attachment to a Practice and Costs

Table 4-3 presents fiscal 2010/11 data in the relationship between attachment and costs from the GP perspective. The data reflect the average attachment level for a given practice. Table 4-4 presents data from the patient perspective (the approach we used in most of our analyses). In both cases there is a clear inverse relationship between attachment and costs.

Table 4-3: The Relationship Between Attachment and Costs for the Main Chronic Conditions: The GP Perspective (Fiscal 2010/11)

Average Attachment Level of the Practice	Average Annual Total Costs			
	Diabetes	CHF	COPD	Hypertension
Average Patient Attachment				
1. Under 60%	11,806	20,045	13,840	7,025
2. 60-69%	6,526	14,282	8,943	4,080
3. 70-79%	4,908	9,380	7,059	3,237
4. 80-89%	4,574	8,786	6,562	3,018
5. 90% or more	4,036	7,845	5,620	2,788

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

Table 4-4: The Relationship Between Attachment and Costs for Chronic Conditions: The Patient Perspective

Attachment to Practice	Average Total Costs							
	Diabetes		CHF		COPD		Hypertension	
	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
1. Less than 40%	12,001	14,903	24,874	27,544	15,643	17,344	7,800	7,712
2. 40-59%	8,041	8,520	16,795	17,957	11,664	11,439	5,298	4,838
3. 60-79%	6,334	6,348	12,744	12,770	9,279	8,783	4,263	3,767
4. 80-89%	4,552	4,521	8,938	9,143	6,735	6,542	3,194	2,809
5. 90% or more	3,229	3,325	5,513	5,570	4,338	4,181	2398	2,082

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

To further validate the relationship between attachment and costs a more detailed paper was produced and published in 2009.⁵ The paper showed that based on an analysis of patients, attachment to practice was the strongest predictor of costs even when nine other predictors were considered simultaneously with attachment. The analysis was based on RUB 4 and 5 for diabetes and chf.

In 2013 a follow up paper was prepared which showed that the inverse relationship remained consistent over time (2009 to 2013 for RUB 4 and 5 diabetes and chf patients). The 2013 paper also showed that for RUB 4 and 5 patients the inverse relationship also pertained for a number of other chronic conditions (i.e., COPD, Hypertension, Angina, Chronic Kidney Disease, Osteoarthritis and Stroke). These findings further validate the finding regarding the inverse relationship between attachment to practice and costs because it can now be seen that the relationship is consistent over time and is consistent across a variety of conditions.

Based on the analysis in the 2013 paper, it is estimated that by raising the overall level of RUB 4 and 5 patients by five percent, across the eight conditions in the analysis, one could possibly achieve annual cost avoidance of some \$142 million. To be clear, this is a mathematical estimate. Also, for a cost-effectiveness analysis one would need to subtract the cost of the intervention instituted to raise the attachment level by five percent from the actual “savings” achieved.

4.4.1.3 The Relationship Between Attachment and Incentives

There is some evidence to indicate that attachment levels are increased over time in relation to increases in the use of incentives. Thus, this lends some support to the hypothesis chain noted above that incentives → better care → more use of the main practice by patients → higher attachment level for GPs.

⁵ Hollander, M.J., Kadlec, H., Hamdi, R., & Tessaro, A. (2009). Increasing value for money in the Canadian healthcare system: New findings on the contribution of primary care services. *Healthcare Quarterly*, 12 (4), 30-42.

At this point we introduce another attachment related concept which has been in place in BC for some time: the Majority Source of Care (MSOC). One is defined as being an MSOC patient if one has at least three GP services in a given year and at least 50% of these services are provided by one GP. Table 4-5 and 4-6 show MSOC data based on dividing GPs into quartiles based on the number of incentives for which they billed (i.e., quartile 1 has the lowest 25% of GP billers of incentives while quartile 4 has the highest 25%). Another point to note is that we present data for all patients and for “Selected” patients. Selected patients are defined as patients who were on the diabetes and/or CHF registries and/or were eligible for a complex care incentive (i.e., they were on at least two of the seven registries included in complex care and/or had billings for at least two of the targeted conditions for complex care). Thus, they were the type of chronic patients for whom the incentives were designed. Finally, we present data related to the percentage of MSOC patients per GP. Actual numbers can change over time so using a percentage provides a more consistent metric for analysis. These data are for fiscal 2009/10 as the MSOC report is not done every year.

Table 4-5: MSOC Patients Over Time Based on Care Provided to All Patients From 2003 to 2009

	Averages													
	% Majority Source of Care ALL Patients							% Majority Source of Care SELECTED Patients						
	2003	2004	2005	2006	2007	2008	2009	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10
All	26.0	26.5	26.6	27.0	27.1	27.3	27.4	33.8	34.2	34.9	34.8	35.9	35.7	35.6
Quartile														
1	13.2	12.9	11.9	11.3	10.7	10.6	10.3	16.5	16.4	14.9	13.5	12.8	12.7	12.4
2	24.3	24.7	25.1	25.2	25.2	24.8	24.3	30.8	31.0	32.1	31.4	31.6	31.1	30.3
3	29.6	30.5	31.0	31.9	32.1	32.5	33.1	38.4	39.1	40.9	41.3	42.9	43.2	43.4
4	37.0	37.9	38.3	39.6	40.5	41.2	41.9	49.4	50.4	51.9	52.8	56.2	55.6	56.2

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10.

Table 4-6: MSOC Patients Over Time Based on Care Provided to All Patients for Regular GPs From 2003 to 2009

	Averages													
	% Majority Source of Care ALL Patients							% Majority Source of Care SELECTED Patients						
	2003	2004	2005	2006	2007	2008	2009	2003 /04	2004 /05	2005 /06	2006 /07	2007 /08	2008 /09	2009 /10
All	31.8	32.3	32.5	33.2	33.6	34.2	34.5	41.4	41.7	42.9	43.1	44.8	45.0	44.9
Quartile														
1	25.7	26.5	26.4	26.5	26.4	26.6	26.4	32.7	32.8	33.3	32.9	32.6	33.2	32.2
2	29.1	29.5	29.7	30.4	30.8	31.2	31.0	37.5	37.5	38.5	38.9	39.8	40.4	39.9
3	33.1	33.5	33.6	35.0	35.5	36.2	37.0	43.2	43.5	45.2	46.2	48.2	48.8	49.0
4	39.1	39.9	40.1	41.0	41.8	42.6	43.5	52.3	53.0	54.3	54.6	58.3	57.7	58.6

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2009/10

As can be seen in Table 4-5, the percentage of MSOC patients (all patients and Selected patients) decreased, or were the same across time for quartiles one and two GPs. However, they increased over time for GPs in quartiles three and four. This means that the high billers of incentives increased their proportion of MSOC patients over time (i.e., increased their average attachment levels), while the low billers (quartile 1) actually decreased their percentages of MSOC patients over time. For example, the percentage of MSOC patients for quartile four GPs increased from 37.0% in 2003 to 41.9% in 2009. The same pattern was in evidence for the percentage of Selected patients where the comparable percentages of MSOC patients went from 49.4% to 56.2%. The increases for “regular” GPs (i.e., those with 50 or more MSOC patients in quartile 4) went from 39.1% to 43.5% for all patients and from 52.3% to 58.6% for Selected patients. We calculated the data for Selected patients based on our fiscal year data extracts, the data for all patients were obtained from the Ministry’s Practitioner Profile database.

4.4.2 Findings Related to Incentive Payments

4.4.2.1 Costs and Cost Avoidance for Chronic Conditions

In this section we provide findings in relation to costs, and cost avoidance for diabetes, CHF, COPD, Hypertension, Complex Care, and Mental Health. Cost patterns and cost avoidance vary by type of condition. To be eligible for Complex Care, patients need to be on the registries of at least two of the complex care designated conditions (eligibility for complex care can change over time). For mental health it was not possible to do an analysis of all mental health patients. It was, however, possible to estimate patients who had depression. Thus, this is the focus here for mental health.

All of the screens used to select patients for analysis were used for these six analyses. Table 4-7 presents data on the costs, and cost breakdowns, for: the raw costs (a simple comparison of costs for patients who did, and did not, receive incentive based care); costs

adjusted for age, sex and RUB level; and costs adjusted for age, sex, RUB level and attachment level. When we adjusted for age, sex and RUB level, the attachment levels were higher for the group which received incentive based care. When we add in attachment to adjust for this difference there is often a noticeable change in the bottom line figure for adjusted cost data. For example, adding in the adjustment for attachment levels switches the comparative costs for those who received incentive based care for diabetes from a cost lower than the “no incentive” group to a cost higher than the “no incentive” group.

Table 4-7: Comparative Cost Analysis Across Conditions

		Raw Costs		Costs Adjusted for Age, Gender, and RUB		Costs Adjusted for Age, Gender, and RUB and Attachment Level	
		No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
Diabetes	GP Amount	588	750	581	755	574	761
	Specialist Amount	645	560	624	575	612	584
	Diag Fac Amount	476	470	472	473	471	474
	GP Specialist and Diag Fac Amounts	1,708	1,780	1,677	1,803	1,658	1,819
	Hospital Costs	979	1,128	2,416	2,049	2,318	2,131
	Pharmacy Costs	2,538	1,965	966	1,141	967	1,140
	Total Cost	5,225	4,873	5,059	4,993	4,943	5,091
CHF	GP Amount	929	1,185	933	1,172	927	1,192
	Specialist Amount	1,026	878	1,019	891	1,008	924
	Diag Fac Amount	716	742	714	749	713	753
	GP Specialist and Diag Fac Amounts	2,672	2,805	2,666	2,812	2,648	2,869
	Hospital Costs	1,513	1,532	6,090	5,232	5,976	5,579
	Pharmacy Costs	6,105	5,213	1,504	1,606	1,503	1,583
	Total Cost	10,290	9,550	10,260	9,649	10,127	10,031
COPD	GP Amount	800	997	802	992	796	1,007
	Specialist Amount	739	608	743	601	735	618
	Diag Fac Amount	546	519	549	514	548	516
	GP Specialist and Diag Fac Amounts	2,085	2,124	2,093	2,108	2,079	2,141
	Hospital Costs	1,388	1,466	4,051	3,111	3,958	3,329
	Pharmacy Costs	4,048	3,119	1,392	1,459	1,391	1,462
	Total Cost	7,521	6,709	7,536	6,678	7,429	6,933

Table 4-7 (cont'd)

		Raw Costs		Costs Adjusted for Age, Gender, and RUB		Costs Adjusted for Age, Gender, and RUB and Attachment Level	
		No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
Hypertension	GP Amount	486	505	480	510	475	517
	Specialist Amount	503	407	486	423	478	432
	Diag Fac Amount	392	357	387	362	386	364
	GP Specialist and Diag Fac Amounts	1,382	1,268	1,353	1,296	1,339	1,313
	Hospital Costs	511	470	1,663	1,278	1,597	1,349
	Pharmacy Costs	1,751	1,202	505	473	507	472
	Total Cost	3,644	2,941	3,522	3,048	3,443	3,135
Complex Care	GP Amount	681	1,153	713	1,116	700	1,133
	Specialist Amount	858	872	908	826	888	851
	Diag Fac Amount	603	692	626	668	625	671
	GP Specialist and Diag Fac Amounts	2,142	2,717	2,247	2,609	2,213	2,655
	Hospital Costs	1,369	1,664	4,672	3,730	4,477	3,960
	Pharmacy Costs	4,190	4,193	1,395	1,664	1,394	1,668
	Total Cost	7,702	8,574	8,314	8,003	8,084	8,283
Mental Health (Depression)	GP Amount	593	740	591	743	587	751
	Specialist Amount	767	596	765	600	761	610
	Diag Fac Amount	359	338	359	338	359	339
	GP Specialist and Diag Fac Amounts	1,719	1,674	1,715	1,681	1,707	1,701
	Hospital Costs	760	852	2,216	1,696	2,175	1,774
	Pharmacy Costs	2,227	1,678	764	844	764	844
	Total Cost	4,706	4,204	4,696	4,222	4,647	4,318

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

The cost comparisons presented in Table 4-7 are only for patients we selected for analysis. However, to obtain a more accurate picture of cost avoidance one needs to compare the overall “savings” from the use of incentives to the total cost of incentives, not just to costs of incentives in the “no incentives” group. Table 4-8 presents data on the overall cost avoidance. Where the savings from the incentives are less than the costs of the incentives this constitutes an add on cost. Where the savings from incentives are positive, but less than the costs of the incentives this represents a partial return on investment. Where the savings from incentives are

greater than the costs of the incentives this means that not only has the use of the incentives recouped the cost of the incentives themselves but there is additional cost avoidance or “savings” over and above the investments made by instituting incentive based care. However, it should be noted the costs presented in Table 4-8 are not additive as people can be in one or more the groups.

Table 4-8: Overall Cost Avoidance Adjusted by Age, Gender, RUB and Attachment Level (Fiscal 2010/11)

	Diabetes	CHF	COPD	Hypertension	Complex Care	Depression
Total Dollar Savings/Cost Using Adjusted Rates Excluding Incentives	-3,068,294	3,716,020	15,558,305	61,860,252	8,581,102	20,911,135
Total Cost of Diabetes Incentives	-21,632,125	-2,510,250	-4,636,805	11,525,650	-47,508,168	-7,364,444
Net Dollar Savings/Cost	-24,700,419	1,205,770	10,921,500	50,334,602	-38,927,168	13,546,692

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

As is noted in Table 4-8 costs, and cost avoidance vary across conditions. It should also be noted that given a high proportion of patients with co-morbidities it is not now clear what the costs are for a given condition. For example, for diabetes for fiscal 10/11, there were a total of 238,702 patients; of these only 146,701 patients only had diabetes. Thus, over 92,000 patients had a combination of diabetes with complex care, CHF, COPD and/or hypertension. Costs can vary by different combinations of conditions. For example, the costs would be higher for patients with diabetes and CHF compared to patients with diabetes and hypertension. This is why our analysis has moved to an analysis of person centred care which places patients into one, and only one, grouping of morbidities (e.g., diabetes only, diabetes and hypertension).

While cost avoidance is variable across conditions, incentives seem to be beneficial when it comes to the use of acute care services. Table 4-9 presents key indicators related to hospital utilization for patients who did, and did not, receive incentive based care.

Table 4-9: Service Utilization Rates Adjusted for Age, Gender, RUB, and Attachment Level (Fiscal 2010/11)

	Diabetes		CHF		COPD	
	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
Hospital Days per 1000 Patients	2,079.0	1,842.8	5,177.7	4,759.2	3,626.7	3,090.5
Net Admissions per 1000 Patients (excluding Transfers and Day Care)	231.9	219.4	546.2	525.9	408.2	375.7
Readmission Within 7 days per 1000 net Admissions	54.9	54.6	68.0	62.5	62.2	61.3
Readmission Within 15 days per 1000 net Admissions	90.2	88.0	112.5	107.3	101.1	97.1
Readmission Within 30 days per 1000 net Admissions	133.4	128.5	164.6	163.1	151.5	145.3
Average Length of stay per regular admission	7.3	6.8	8.1	7.8	7.6	7.0
Average Length of stay per hospital stay	7.9	7.3	8.9	8.5	8.1	7.5
Average Length of stay per hospital stay episode	9.1	8.4	10.6	10.1	9.6	8.7

	Hypertension		Complex Care		Depression	
	No Incentive	Incentive	No Incentive	Incentive	No Incentive	Incentive
Hospital Days per 1000 Patients	1,368.3	1,111.1	3,884.7	3,358.5	2,300.5	1,852.4
Net Admissions per 1000 Patients (excluding Transfers and Day Care)	165.7	143.6	422.5	395.7	254.9	227.8
Readmission Within 7 days per 1000 net Admissions	43.6	43.0	65.6	59.1	67.2	66.2
Readmission Within 15 days per 1000 net Admissions	69.4	64.6	105.6	97.2	108.5	106.1
Readmission Within 30 days per 1000 net Admissions	100.2	91.5	154.2	145.0	155.2	151.0
Average Length of stay per regular admission	6.3	5.7	7.7	7.1	7.8	6.9
Average Length of stay per hospital stay	6.8	6.1	8.4	7.7	8.3	7.3
Average Length of stay per hospital stay episode	7.6	6.8	10.0	9.0	9.8	8.6

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/11.

4.4.3 Analysis of Person Focused Care

Given that the findings from single disease analyses have become more difficult to interpret we conducted a person focused analysis. We clustered patients into the 11 most common clusters of chronic disease conditions. Each patient can only be in one cluster. Thus, cost avoidance results are additive across clusters. In developing the clusters we looked at a wider range of chronic conditions/procedures, for which there are registries in British Columbia. The groups selected were as follows:

- (a) Diabetes only (DM)
- (b) Arthritis only (Arthr)
- (c) Hypertension only (Htn)
- (d) Diabetes plus Hypertension only
- (e) CHF plus (HF)
- (f) Stroke plus (Stroke)
- (g) Chronic Kidney Disease combinations (CKD Combos)
- (h) Ischemic Heart Disease combinations (IHD Combos)
- (i) Chronic Respiratory combinations (COPD and Asthma) (RespD)
- (j) Diabetes plus other conditions
- (k) Arthritis and Hypertension

The number of patients in each group is presented in Table 4-10 along with RUB levels. These patients were broken down into: those who received incentives and those who were covered (eligible) for an incentive but did not receive incentive based care. The comparative adjusted costs for each group are presented in Table 4-11. As there is no specific incentive for arthritis, data are only presented for patients who did not receive incentive based care, and non incentive/incentive comparisons do not include the arthritis only group. The findings for key indicators for hospital were essentially consistently positive, as was found above for the disease specific analysis.

The cost avoidance in the disease specific analyses is not additive as a patient could be in more than one group. However, because each patient is only in one group, in the person focused analysis, the results are additive. Table 4-12 presents the cost avoidance results for each group. This shows the cost avoidance from incentive based care for the analysis based on our selected sample. Table 4-13 shows that on an overall basis not only were the costs of incentive payments recouped but there was additional cost avoidance, over and above the costs of the incentives of some \$49 million in Fiscal 2010/11.

It should be noted that the cost avoidance presented in Tables 4-12 and 4-13 is based on incentives for chronic conditions, i.e., diabetes, CHF, COPD, hypertension and complex care. This analysis does not include incentives for maternity services as these were developed to stop the decline of physicians doing obstetrical and maternity care and thus, cost avoidance was not an issue. The data also do not include incentives for mental health, although the depression analysis indicates a cost avoidance of some \$10M, and conferencing fees are also not included but the overall costs were quite modest.

Table 4-10: Number of Screened Patients in Chronic Disease Combinations by RUB Level Based on Selected Registries for Fiscal 2010/11

Combination	Patients					Average RUB	% of Patients	% by RUB		
	All	R.U.B.			3			4	5	
		3	4	5						
a. Diabetes Only	44,969	37,289	6,014	1,666	3.2	5.2	82.9	13.4	3.7	
b. Arthritis Only	70,593	54,073	12,769	3,751	3.3	8.1	76.6	18.1	5.3	
c. Hypertension Only	185,880	155,788	23,307	6,785	3.2	21.4	83.8	12.5	3.7	
d. Diabetes Plus Hypertension Only	60,549	49,023	8,485	3,041	3.2	7.0	81.0	14.0	5.0	
e. CHF Combos	65,406	28,037	20,154	17,215	3.8	7.5	42.9	30.8	26.3	
f. Stroke Combos	39,789	18,259	11,428	10,102	3.8	4.6	45.9	28.7	25.4	
g. Chronic Kidney Disease Combos	39,015	20,653	11,303	7,059	3.7	4.5	52.9	29.0	18.1	
h. IHD Combos	68,676	40,116	18,864	9,696	3.6	7.9	58.4	27.5	14.1	
i. Chronic Respiratory Combos	192,353	143,098	38,456	10,799	3.3	22.2	74.4	20.0	5.6	
j. Diabetes Plus Others	34,062	24,844	6,600	2,618	3.3	3.9	72.9	19.4	7.7	
k. Arthritis and Hypertension	65,717	49,057	12,234	4,426	3.3	7.6	74.6	18.6	6.7	
All	867,009	620,237	169,614	77,158	3.4	100.0	71.5	19.6	8.9	

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/2011.

Table 4-11: Annual Average Costs for Chronic Disease Combinations Based on Selected Registries Adjusted for Age, Gender, RUB Level and Attachment Level for Fiscal 2010/11

		Costs Adjusted for Age, Gender, and RUB and Attachment Level	
		No Incentive	Incentive
Diabetes Only	GP Amount	530	368
	Specialist Amount	360	394
	Diag Fac Amount	326	317
	GP Specialist and Diag Fac Amounts	1,216	1,079
	Hospital Costs	784	992
	Pharmacy Costs	578	479
	Total Cost	2,578	2,550
Hypertension Only	GP Amount	428	381
	Specialist Amount	316	363
	Diag Fac Amount	293	310
	GP Specialist and Diag Fac Amounts	1,037	1,054
	Hospital Costs	759	947
	Pharmacy Costs	275	282
	Total Cost	2,071	2,283
Diabetes Plus Hypertension Only	GP Amount	591	402
	Specialist Amount	394	435
	Diag Fac Amount	366	368
	GP Specialist and Diag Fac Amounts	1,351	1,206
	Hospital Costs	953	1,157
	Pharmacy Costs	728	637
	Total Cost	3,032	3,000
CHF Combos	GP Amount	1,106	740
	Specialist Amount	962	1,053
	Diag Fac Amount	734	698
	GP Specialist and Diag Fac Amounts	2,802	2,490
	Hospital Costs	5,658	6,466
	Pharmacy Costs	1,623	1,300
	Total Cost	10,083	10,257

Table 4-11 (cont'd)

		Costs Adjusted for Age, Gender, and RUB and Attachment Level	
		No Incentive	Incentive
Stroke Combos	GP Amount	864	656
	Specialist Amount	687	831
	Diag Fac Amount	520	545
	GP Specialist and Diag Fac Amounts	2,072	2,032
	Hospital Costs	3,556	5,050
	Pharmacy Costs	1,175	1,000
	Total Cost	6,804	8,082
Chronic Kidney Disease Combos	GP Amount	835	583
	Specialist Amount	893	1,003
	Diag Fac Amount	700	706
	GP Specialist and Diag Fac Amounts	2,427	2,292
	Hospital Costs	3,099	3,724
	Pharmacy Costs	1,322	1,147
	Total Cost	6,848	7,163
IHD Combos	GP Amount	769	518
	Specialist Amount	646	706
	Diag Fac Amount	534	545
	GP Specialist and Diag Fac Amounts	1,949	1,770
	Hospital Costs	2,454	2,824
	Pharmacy Costs	1,045	851
	Total Cost	5,448	5,445
Chronic Respiratory Combos	GP Amount	716	511
	Specialist Amount	468	518
	Diag Fac Amount	396	391
	GP Specialist and Diag Fac Amounts	1,580	1,421
	Hospital Costs	1,521	1,797
	Pharmacy Costs	1,003	835
	Total Cost	4,105	4,053

Table 4-11 (cont'd)

		Costs Adjusted for Age, Gender, and RUB and Attachment Level	
		No Incentive	Incentive
Diabetes Plus Others	GP Amount	703	502
	Specialist Amount	521	567
	Diag Fac Amount	438	429
	GP Specialist and Diag Fac Amounts	1,662	1,498
	Hospital Costs	1,489	1,676
	Pharmacy Costs	1,031	848
	Total Cost	4,182	4,022
Arthritis and Hypertension	GP Amount	550	487
	Specialist Amount	494	530
	Diag Fac Amount	389	396
	GP Specialist and Diag Fac Amounts	1,433	1,413
	Hospital Costs	1,426	1,664
	Pharmacy Costs	583	564
	Total Cost	3,442	3,641

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/2011.

Table 4-12: Average Annual Cost Avoidance for Each Group (Adjusted by RUB, Attachment, Gender, and Age Group) for Fiscal 2010/11

	Total Savings/Cost for Incentive Based Care for Selected Patients	Total Costs of Incentives for All patients	Total Cost Avoidance
Average Annual Costs for Diabetes Only Patients	3,702,891	-6,169,725	-2,466,834
Average Annual Costs for Hypertension Only Patients	26,039,257	-8,551,185	17,488,072
Average Annual Costs for Diabetes Plus Hypertension Patients	7,571,841	-10,830,110	-3,258,269
Average Annual Costs for CHF Combos Patients	23,822,226	-18,065,500	5,756,726
Average Annual Costs for Stroke Plus Patients	36,242,707	-7,313,120	28,929,587
Average Annual Costs for Chronic Kidney Disease Combos Patients	12,918,686	-6,793,670	6,125,016
Average Annual Costs for Ischemic Heart Disease Combos Patients	9,727,318	-10,988,630	-1,261,312
Average Annual Costs for Chronic Respiratory Combos Patients	6,768,287	-10,642,115	-3,873,828
Average Annual Costs for Diabetes Plus Patients	1,130,950	-5,390,760	-4,259,810
Average Annual Costs for Arthritis and Hypertension Patients	9,023,189	-3,022,645	6,000,544

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/2011.

Table 4-13: Annual Cost Avoidance for Fiscal 2010/11

Groups	Cost Avoidance
Stroke Combos	28,929,587
Hypertension Only	17,488,072
Chronic Kidney Disease Combos	6,125,016
Arthritis and Hypertension	6,000,544
CHF Combos	5,756,726
IHD Combos	-1,261,312
Diabetes Only	-2,466,834
Diabetes Plus Hypertension Only	-3,258,269
Chronic Respiratory Combos	-3,873,828
Diabetes Plus Others	-4,259,810
	49,179,893

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2010/2011.

4.4.4 Related Topics Regarding Incentives

4.4.4.1 *Obstetrics and Maternity Care*

As general practitioners (GPs) almost always bill for incentives related to deliveries, it is not possible to conduct analyses comparing patients who obtained incentive based care and those who did not, as is done for chronic diseases and complex care. While there are patients for whom an incentive was not billed, they are in large part patients of GPs who exceeded the 25 delivery limit for incentives. Thus, they are not considered to be a separate group *per se*. The data presented below refer to the 2010/11 fiscal year.

With regard to maternity care networks, for fiscal 10/11, some 648 GPs (78.9%) were in networks. They billed for 11,978 incentives (94.2% of incentives). In terms of costs, a total of \$8,276,473 was billed for obstetrics and maternity care incentives for fiscal 10/11. Some \$2,941,246 was billed for deliveries and post-natal care and \$4,962,300 was billed for maternity care networks. There was a small drop in GPs providing deliveries and post natal care from 785 GPs to 778 GPs in fiscal 10/11 and 120 GPs (15.9%) did 25 or more deliveries. Over time, there has been a decrease in the percentage of male practitioners providing deliveries and an increase in the percentage of females. Comparing fiscal 01/02 and 10/11, the percentage of male GPs providing deliveries dropped from 63.4% to 50.6% while the percentage of females increased from 36.6% to 49.4%. Some 778 GPs, 179 midwives and 163 specialists provided normal deliveries (fee items 14104, 36040, 36044). While there was a small decrease in GPs providing normal deliveries, there was an increase in midwives. Overall, the total number of practitioners remained relatively constant from fiscal 07/08 to fiscal 10/11. During that period annual deliveries increased from 29,306 to 30,239. In metropolitan areas, some 54.2% of normal deliveries were provided by GPs, 24.1% by midwives and 21.7% by specialists. For small towns

and villages the percentages were 87.6%, 11.6% and 0.8%, respectively. Thus, there is an inverse relationship between the size of community and the percentage of deliveries provided by GPs.

In addition to the analysis of administrative data on obstetrics, a key informant interview project was conducted on maternity care in 2010. The purpose of the project was to obtain more in-depth information on the provision of general practitioner obstetrics and maternity care and on whether or not existing incentive payments should be refined, changed, or expanded.

Physicians were asked if they had participated in the Maternity Care for BC (MC4BC) Program. Half of the physicians indicated that they were not aware of the program. The physicians were also asked whether they had access to four maternity related programs: Managing Obstetrical Risk Effectively (MORE^{ob}); Advanced Life Support in Obstetrics (ALSO); Advances in Labour and Risk Management (ALARM); and the Neonatal Resuscitation Program. While respondents were aware of the various programs, only the Neonatal Resuscitation Program was available in all of the communities.

The physicians were asked how supported they felt by the health care system to provide maternity care and to perform or assist with obstetrical deliveries. The majority (78%) indicated that they felt moderately supported by the health care system. All of the physicians indicated that they do maternity care because they want to. While physicians in larger communities noted they had good support from colleagues, those in smaller locations noted there were barriers (such as access to anesthetists, obstetricians and pediatricians) that affected the quality of care they could provide.

Physicians were also asked if they felt that the Obstetrical Premium and Network Fees were working and what they saw as the benefits and challenges of the fees. There was some agreement that the Obstetrical Premium may be encouraging some physicians to continue providing maternity care, although it does not appear to be encouraging physicians to return to providing maternity care; responses were mixed regarding the impact the incentive fee may be having on new physicians. Physicians doing a high volume of deliveries noted that the Obstetrical Premium does not recognize all of the deliveries they are doing. Respondents noted that the Network Fee provides some recognition of the work general practitioners are doing but may not have enhanced support for physicians to the extent that GPSC intended. For example, it may not be encouraging physicians to work together as one can be part of a “network” on paper but not participate in call sharing, it may not be encouraging new family physicians to take on maternity care, and it does not necessarily improve a physician’s quality of life, as he/she needs to be readily available when he/she is on call.

The key informant physicians raised several concerns related to working with midwives, on-call responsibilities, and time and billing issues in the pre and post natal period. With respect to working with midwives, physicians noted that midwives are paid significantly more than family physicians for obstetrical care. It was noted that general practitioners have more comprehensive training than midwives and that the benefits to the health care system are substantial when they provide maternity care.

Some of the physicians noted that maternity care is becoming a sub-specialty of family practice (like family physicians in emergency). Unlike anesthetists and obstetricians, family physicians are not compensated for the time they spend on-call. It was noted that younger family physicians do not want to be on-call all the time, even for their own patients. Thus, in order to encourage younger physicians to do maternity care, they need to feel supported to be on-call. Physicians also noted that they are not compensated for all of the time they may spend with patients in the prenatal, delivery and post-partum periods. It was noted that most mothers (especially first time mothers) usually have one or more issues that need to be addressed, particularly in the six-week post-partum period.

Overall, the physicians generally appreciated having the Obstetrical Premium and the Maternity Care Network Fee, but did not feel they were sufficient to recognize the amount of time and effort family physicians spend providing maternity care pre and post delivery activities. They also noted that there needs to be greater collaboration among the various groups and committees in the province who are trying to improve maternity care in BC. There was considerable interest in having primary care maternity clinics throughout the province, but it was recognized that the specific model(s) needs to be sustainable for the health system, physicians and patients. Finally, physicians, particularly in smaller communities, need to have increased access to education, training and specialist resources at the community and regional levels.

4.4.4.2 Conferencing and Palliative Care Planning

With regard to the Conferencing Incentives, unlike diabetes and CHF, there are currently no comprehensive registries for people who are eligible for these types of incentive payments. Thus, it is not possible to identify a group which did not receive incentives that is similar to the group which did receive incentive based care. As a consequence, we present descriptive data on patients for whom GPs billed the incentive fees.

In fiscal 09/10, new fees were introduced for palliative care planning and palliative care follow-up. Fiscal 10/11 data are presented below. To avoid confusion, it is important to point out that these are new palliative care incentives and are not the same as the Palliative/End of Life Conferencing incentives. However, these new fees are for planning and follow-up, care similar to the conferencing fees and, thus, they are also presented here.

With regard to fiscal 2010/11 Community Conferencing data for all patients excluding patients who died and patients with other incentives community conferencing incentives were billed for 14,669 patients. Total expenditures for community conferencing fees from April 2010 to March 2011 were \$1,197,640, some \$874,440 of this was for mental health/co-morbidities. Facility Conferencing data for all patients excluding patients who died and patients with other incentives for fiscal 2010/11 indicates that facility conferencing fees were billed for 7,560 patients. Total expenditures for facility conferencing fees from April 2010 to March 2011 were \$821,400, some \$366,840 was for the frail elderly and \$410,280 was for mental health/co-morbidity.

Overall total annual costs for fiscal 10/11 were: \$1,381,120 for Mental Health/Co-Morbidity; \$685,080 for Frail Elderly; \$131,840 for Palliative/End of Life; and \$179,000 for

Acute Care, for a total of \$2,198,040 for all conferencing fees. GPs billed an average 5 to 6 conferencing incentives per month in fiscal 10/11. Monthly costs for these billings, per GP, ranged from \$192 to \$247.

Palliative Care Planning data (a new incentive, and not to be confused with the palliative/end of life conferencing fee) for all patients excluding patients who died and patients with other incentives indicated that in fiscal 10/11, 3,979 palliative care planning and follow-up incentives were billed. Total expenditures for palliative care planning and follow-up incentives for the period June 2010 to March 2011 were \$273,035.

5. KEY FINDINGS FROM SURVEYS REGARDING PRIMARY CARE AND GPSC INITIATIVES

5.1 Introduction

This section presents findings from the 2012 surveys which provide qualitative data on GP and patient perceptions of primary care. It also provides information about a survey conducted with medical residents.

5.2 Survey of Family Practice Residents

As part of the evaluation of the Full Service Family Practice Incentive Program, a survey was conducted with family practice residents to determine their familiarity with the various initiatives. This section provides the findings from that survey. Findings from a similar survey of family practice residents were documented in a June 2009 report.⁶ Where appropriate, findings from the two surveys are compared.

The 20 item survey for family practice residents was e-mailed to all first and second year family practice residents by the Postgraduate Program at the University of British Columbia (UBC). It asked participants about: their background (e.g., gender, age, length of time in residency program); why they had selected family medicine; their future practice goals; their familiarity with various GPSC initiatives; and their perceptions regarding the rewards and challenges of family medicine as well as the strengths and weaknesses of the various initiatives. The survey was distributed to approximately 220 family practice residents throughout the province; 71 were completed and returned to the researchers, for an overall response rate of 32.3%.⁷

Over 94% of survey respondents (first and second year family practice residents) expect to pursue full service family practice (with or without obstetrics) in the long term. By comparison, 70.8% of family practice residents in a 2009 survey indicated that they expected to pursue family medicine.

⁶ Miller, J.A. (2009). *Evaluation of the Full Service Family Practice Incentive Program and the Practice Support Program. Final Report: Survey of family practice residents regarding the incentive payments.* Victoria BC: Hollander Analytical Services.

⁷ The response rate for the 2009 survey was 24.0%.

Approximately 89% of respondents expect to practice in a group or interprofessional office practice and over 98% expect to use electronic medical records when they enter into practice. Some 92% of respondents indicated that they chose family medicine because of the breadth of practice; another 85% chose it because of doctor-patient relationships. Over 87% of respondents were aware of incentive payments, 39% were aware of PSP learning modules, and 35% were aware of Divisions of Family Practice.

Approximately half of the respondents indicated that they did not know how effective the Full Service Family Practice Incentive Program is with respect to recognizing the time and effort needed to provide care to patients or to improve continuity or quality of care for patients.

Comparisons with findings from a similar survey conducted in 2009 suggested that family practice residents' awareness of GPSC initiatives may have declined over the past three years. Several respondents in the current survey expressed a desire to learn more about the business side of family practice, including the various incentive payments. GPSC may wish to consider developing and/or expanding communication approaches to assist new family physicians in understanding the various GPSC initiatives.

5.3 Survey of GPs

5.3.1 Introduction

As part of the evaluation of the Full Service Family Practice Incentive Program, surveys were sent to family physicians who were billing for incentive payments as well as those who were not billing for the payments. Findings from a similar survey of family physicians were documented in a June 2009 report. Where appropriate, findings from the current survey are compared with those from the 2009 survey.

All family physicians identified as such in the Ministry of Health database as of July 1, 2011 were included in the sampling frame. Physicians who were identified as not currently doing family practice, retired, inactive, or out of province were eliminated from the sample.

The physicians were placed in one of 11 groups (see Table 5-1). For 10 of these groups, placement was based on the number of incentive payments the physicians had billed in fiscal 2010/2011 as well as the number of MSOC patients they had.¹ Physicians in the maternity group needed to provide both pre- and post- natal care, to do deliveries,² and to have done more than five deliveries in fiscal 2010/2011. To ensure that physicians were identified for only one group, physicians in the non-biller group were selected first, followed by physicians in the maternity group. Physicians in the various billing groups were selected last. Physicians in the medium biller/low attachment and high biller/low attachment groups were subsequently eliminated from the study as there were very few physicians in both of these groups.

¹ A majority source of care (MSOC) patient has received three or more health care services in a year with at least half of the services provided by the same physician. For this survey, attachment level was based on the number of MSOC patients physicians had.

² The provision of pre- and post- natal care as well as deliveries was determined through physicians' billings for all maternity related fee-for-service codes (not only those associated with incentive payments).

Three survey tools were created for the present study – one for non-billers, one for maternity physicians, and one for physicians who were billing for incentive payments. Although each survey was designed for the specific target group, there was overlap across the survey questions to enable comparisons among the various groups. A total of 4,554 surveys were sent out and 1,292 surveys were returned for an overall response rate of 26.2%.

Table 5-1: Study Design

Number of MSOC Patients	Number of Incentives Billed				Maternity Physicians
	0 to 25 Incentives	0 to 49 Incentives	50 to 299 Incentives	300 or More Incentives	
0 to 5	Non-billers/little to no attachment				
0 to 25		Low billers/low attachment	Medium billers/low attachment*	High billers/low attachment*	
26 to 475		Low billers/medium attachment	Medium billers/medium attachment	High billers/medium attachment	
476 or More		Low billers/high attachment	Medium billers/high attachment	High billers/high attachment	
					Maternity physicians

* Not included in the final design due to low numbers.

5.3.2 Key Findings

The Physician Survey examined three groups of physicians – those who had billed for incentive payments (billing physicians), those who provided pre- and post- natal care and had billed for maternity incentive payments (maternity physicians), and those who had never or rarely billed for incentive payments (non-billers).

Billing Physicians

- High billers were more likely to be male and practicing full time compared to low and medium billers.
- Physicians in the high biller/high attachment group generally provided more positive ratings than respondents in the other groups regarding the impact of, the effectiveness of, and their satisfaction with, the incentive payments.
- Respondents in all of the groups felt that the incentive payments had had a positive impact on themselves, patient care, and family practice in general. For example, respondents felt that the incentive payments had: enabled them to feel that their training, knowledge and experience are recognized; increased their ability to take care of their patients and provide continuity of care; and improved family practice in general.
- Over 60% of respondents in most of the billing groups felt the incentive payments were somewhat or very effective in recognizing the time and effort needed to provide care to patients and in improving both the continuity and quality of care for patients.

- Over 67% of respondents in all of the billing groups indicated they were somewhat or very satisfied with the incentive payments.
- With respect to benefits and challenges, over 60% of respondents in the medium and high biller groups indicated that while the incentive payments had increased their income and improved patient care, billing for the incentive payments had also resulted in increased paperwork.

Maternity Physicians

- About half of the maternity physicians were male. The majority worked full time, in group practices, and in metropolitan or urban/suburban settings.
- While some of the maternity physicians limited their practice to maternity patients, the majority (91%) indicated that they provided care to both maternity and non-maternity patients.
- Over 70% of maternity physicians felt the incentive payments had had a positive impact on their practice, patient care and family practice in general.
- With respect to benefits and challenges, over 60% indicated that the non-maternity incentive payments had increased their income and improved patient care but had also increased the amount of paperwork they needed to complete.
- Overall, the maternity physicians seemed most similar to those in the medium biller/medium attachment group.

Non-Billing Physicians

- Approximately 54% of physicians in the non-billing group were male and 72% worked in practice settings other than an office or drop-in clinic.
- Approximately 63% indicated they were not eligible to bill for the incentive payments.
- With respect to demographic characteristics, the non-billing physicians were generally like the physicians in the billing groups except they were likely to work as locums, consultants, emergency room physicians and/or hospitalists.

5.3.3 Comparisons With the 2009 Survey

While the 2012 Physician Survey focused on differences among low, medium and high billers across all incentive payments, the 2009 Physician Survey focused on low, medium and high billers within each type of incentive payment. Both surveys considered maternity and non-billing physicians separately from billing physicians. Despite these differences, it was possible to compare some findings from both surveys.

The findings indicated that:

- With respect to demographic characteristics, the physicians in the 2009 and 2012 samples were very similar (this is not overly surprising since both samples tried to include all family physicians in the province);
- Compared with low, medium and high billers on the 2009 survey, a substantially higher proportion of respondents on the 2012 survey indicated that they agreed with various positive statements regarding the impact of the incentive payments;
- Compared to the 2009 survey, a higher proportion of respondents on the 2012 survey indicated that the incentive payments were having a positive impact on three practice related areas (income, quality of care provided to patients, and overall satisfaction with work) although an increase in paperwork and overall workload were still reported by a substantial proportion of respondents (particularly those in the high biller group);
- Compared to respondents on the 2009 survey, a higher proportion of the respondents on the 2012 survey indicated that they were somewhat or very satisfied with the incentive payments;
- In general, maternity physicians on the 2012 survey were similar to the high billing maternity physicians on the 2009 survey with respect to the positive impacts of the maternity care incentive payments and their overall satisfaction with the maternity incentive payments;
- Compared to 2009, more non-billing physicians on the 2012 survey seemed to be aware of the incentive payments and fewer indicated they were ineligible to bill, too much effort was involved, the payments were insufficient and/or they were dissatisfied with the payments; and
- Non-billing physicians rated the effectiveness of the incentive program similarly in 2009 and 2012 with respect to recognition of the amount of time and effort required to provide patient care and continuity of care for patients.

Taken together, the comparison of the findings from the 2009 and 2012 Physician Surveys indicate that for the three groups of physicians (billing, maternity and non-billing physicians), things have improved over the past three years.

5.3.4 Policy and Program Implications

Overall, the findings from the 2012 Physician Survey indicated that GPSC's systematic approach to the development and implementation of the incentive payments is working well. Nevertheless, there are also some areas where GPSC may wish to make additional improvements.

- **Supporting Family Physicians and Improving Patient Care:** Both the billing and the maternity physicians in the current survey indicated that the availability of the incentive payments had had a positive impact on themselves, patient care and family practice in general. In addition, approximately half of the physicians felt that the

availability of the incentive payments had enabled patients to become attached to a family physician and more than half felt that the availability of the incentive payments had enabled their patients to participate in self-managed care. These findings are very important as they indicate that physicians feel GPSC's goals of supporting family practice and improving patient care are being realized. Nevertheless, GPSC may wish to consider how they can continue to support family physicians (particularly those that are low billers).

- **Patient Access to Care:** A large majority of physicians indicated that their practice is partially or completely closed. This is potentially problematic for patients who do not currently have a family physician, who develop a condition which requires regular monitoring, and/or who move from one location to another. The role of incentive payments on access to care appears to be relatively small, as few physicians in the billing and maternity groups indicated that the incentive payments had enabled them to hire one or more allied health professionals and/or additional staff to do non-clinical work or to conduct group medical visits. In addition, less than half of the physicians felt that the incentive payments had enabled patients to have increased access to a family physician or other health care provider. GPSC may wish to consider how they can better encourage and support family physicians to accept new patients and/or ensure that patients have access to a variety of health care providers (e.g., nurses, dietitians, and so on), as appropriate. (This is now being done through the Attachment Initiative).
- **Time and Workload Constraints:** Physicians in the billing and maternity groups often indicated that time and/or workload constraints affected their ability to bill for all eligible patients and/or accept new patients. Physicians also identified increased paperwork and overall workload as negative impacts of the non-maternity incentive payments (there were few concerns with the maternity incentive payments). To address these issues, GPSC may wish to consider how it could: (continue to) apply lessons from the maternity incentives to the other incentive payments; streamline billing procedures; enable physicians to obtain additional staff without increasing the time and effort that such an endeavour could entail for physicians; and/or enable physicians to use EMRs effectively.
- **High Billers Versus Medium and Low Billers:** High billers (particularly those in the high biller/high attachment group) appeared to be benefiting more from the availability of the incentive payments than physicians in the other groups. For example, high billers felt that the incentive payments: have had a positive impact on themselves, patient care and family practice in general; have improved their ability to take on new patients; are effective in recognizing the time and effort required to provide care; and are effective in improving the continuity and quality of patient care. Given that most of the high billers worked full time, it is likely that they have had more opportunity to experience the positive effects of the incentive payments. GPSC may wish to develop strategies to actively support physicians to move into full time family practice if they so desire.

- **Non-Billers:** The majority (63%) of non-billing physicians were not eligible to bill for the incentive payments because of where they were working (e.g., hospital, emergency room) and/or because they were working under some non-fee-for-service arrangement. However, 21% of the non-billers indicated that they did not know if they were eligible to bill for the incentive payments, and about half of these indicated they were not aware of the incentive payments. (In addition, approximately 30% of billing physicians and 25% of maternity physicians indicated they were not billing because they were not sure if patients were eligible.) GPSC may wish to consider developing additional communications materials which focus on the incentive payments (e.g., their purpose, types, eligibility criteria, and so on). This would be beneficial for non-billers as well as physicians who are not billing for all eligible patients, and family practice residents who wish to know more about the incentive payments in general. GPSC may also wish to consider if/how they could use physicians who currently teach others about family practice to assist them in this endeavour.
- **New Incentive Payments:** Although a wide variety of incentive payments are currently available, respondents in all of the groups suggested that incentive payments should be added for: individuals with chronic pain or autoimmune disorders; non-palliative cancer patients; individuals with neurological and mental health conditions; trauma patients; and individuals with medication/addiction issues. GPSC may wish to consider whether incentive payments should be available for any/all of these groups, and if so, if the new incentive payments could be incorporated into existing categories (e.g., complex care).
- **Conclusion:** In conclusion, the availability of the various incentive payments (as well as the PSP learning modules and the Divisions of Family Practice) appear to be having an overall beneficial effect on family physicians, patient care, and family practice in general.

5.4 Survey of Patients

5.4.1 Introduction

As part of the evaluation of the Full Service Family Practice Incentive Program, surveys were sent to patients in BC regarding health care services provided by their family physicians who were non-billers, or low, medium or high billers of various incentive payments.

The survey was designed to determine:

- If patients' perceptions of the care they receive are affected by their physician's billing level (defined as the number of incentive payments their physician billed);
- If patients' perceptions of the care they receive are affected by their physician's volume level (defined as the number of MSOC patients their physician had); and

- How patient demographics and perceptions in the 2012 survey compare with those obtained in the 2009 survey.

5.4.2 Design and Methodology

MSOC patients were selected based on the number of incentive payments their family physician had billed as well as the number of MSOC patients their physician had. All family physicians who had billed for incentive payments in the 2010/2011 fiscal year were divided into: non-billers³ and low, medium and high billers. Physicians who were low, medium or high billers of incentive payments were further divided in low, medium or high volume (i.e., volume of MSOC patients) practices.

Non-MSOC patients were sampled from low, medium and high volume practices (i.e., the physician's billing level was not considered).

Maternity patients were selected from family physicians who provided pre- and post-natal care and had billed for maternity incentive payments in the previous year. All of the patients in this group were women who had delivered their baby within the previous year.

A random sample of patients aged 19 and older was obtained for each of the 12 groups of patients (eight groups of MSOC patients, three groups of non-MSOC patients, and one group of maternity patients). Table 1 presents the 12 groups studied. Individuals in the various patient groups were not tied to the physicians who responded to the 2012 GPSC Physician Survey (which is documented in a separate report). That is, the patients who responded to the patient survey may or may not have been patients of physicians who returned a completed physician survey but would have been patients of physicians in that group.

The surveys for all of the MSOC patients were identical, as were the surveys for all of the non-MSOC patients. There was overlap across the surveys to enable comparisons to be made between the MSOC and non-MSOC patients. The surveys for the maternity patients were similar to those used for the other groups, although some items were deleted (such as discussions with the physician about end-of-life issues), while others were added (such as those related to the respondent's most recent pregnancy).

MSOC and non-MSOC patients were asked to complete the survey based on the care and services they had received from their main family doctor in the last 12 months. For MSOC patients, the term main family doctor was defined as the family doctor they had seen most often in the last 12 months. If a non-MSOC patient had a family doctor, he/she was asked to complete the survey with that person in mind. If the non-MSOC patient did not have a family doctor, he/she was asked to complete the survey based on the doctor they saw most often in the last 12 months. Maternity patients were asked to complete the survey based on the care and services they had received from the family doctor who provided most (or all) of their prenatal care during their most recent pregnancy.

³ Physicians in the non-biller group had never or rarely billed for incentive payments.

A total of 5,823 surveys were sent out and 1,660 surveys were returned, for an overall response rate of 28.5%.

Table 5-2: Study Design for Patient Survey

Type of Patient	Group Label	Patients of... ⁸
MSOC Patients	Non-biller	Non-biller/little to no attachment physicians ⁹
	Low biller/low volume	Low biller/low attachment physicians
	Low biller/medium volume	Low biller/medium attachment physicians
	Low biller/high volume	Low biller/high attachment physicians
	Medium biller/medium volume	Medium biller/medium attachment physicians
	Medium biller/high volume	Medium biller/high attachment physicians
	High biller/medium volume	High biller/medium attachment physicians
	High biller/high volume	High biller/high attachment physicians
Non-MSOC Patients	Low volume	Non-biller/little to no attachment physicians and low biller/low attachment physicians
	Medium volume	Low biller/medium attachment physicians, medium biller/medium attachment physicians and high biller/medium attachment physicians
	High volume	Low biller/high attachment physicians, medium biller/high attachment physicians, and high biller/high attachment physicians
Maternity Patients	Maternity	Maternity physicians

5.4.3 Highlights of Findings

The Patient Survey examined whether patients’ perceptions of the care they receive are affected by their physician’s billing level and/or practice volume. Billing level was defined as the number of incentive payments physicians had billed; practice volume¹⁰ was defined as the number of MSOC patients physicians had. The survey included three types of patients – MSOC patients, non-MSOC patients and maternity patients.

MSOC Patients in the Low, Medium and High Biller Groups

- Comparisons among MSOC patients of physicians who were low, medium and high billers of incentive payments indicated that most of the significant differences were between patients in the high and low biller groups.
- Compared to patients in the low biller group, patients in the high biller group:
 - Were more likely to have physicians who have group practices, and less likely to have physicians who work in walk-in clinics;
 - Were more likely to have been with their physician longer;
 - Were more likely to have seen fewer doctors in the last 12 months;

⁸ As noted, in the Physician Survey, the word attachment rather than volume was used to identify the number of MSOC patients a physician had. To enable comparisons with the Physician Survey, this column uses group labels from that survey.

⁹ The physicians in this group never or rarely billed for incentive payments.

¹⁰ The terms practice volume, volume level and volume are used interchangeably.

- Provided more positive ratings regarding their doctor's knowledge of their medical history and their values and beliefs;
- Were more likely to feel they were partners with their doctor; and
- Indicated they had greater confidence in their doctor.
- Compared to patients in the medium biller group, patients in the high biller group provided more positive ratings regarding their overall relationship with their doctor.
- Compared to patients in the low biller group, patients in the medium biller group:
 - Were more likely to have physicians who have group practices and less likely to have physicians who work in walk-in clinics;
 - Provided more positive ratings regarding their doctor's knowledge of their medical history and their values and beliefs; and
 - Indicated they had greater confidence in their doctor being able to involve other health care providers and their (i.e., the patients') ability to look after their own health care needs.

MSOC Patients in the Biller and Non-Biller Groups

- MSOC patients of billing and non-billing physicians¹¹ were generally similar with respect to their ability to obtain medical care and their relationship with their doctor.

MSOC Patients vs. Maternity Patients

- MSOC and maternity patients¹² were similar with respect to most factors. Key differences between the two groups related to when they obtained care and their confidence in their physician and the health care system in general. Many of these differences can be accounted for the relatively structured and short-term nature of pregnancy.

MSOC Patients vs. Non-MSOC Patients

- MSOC and non-MSOC patients of physicians in the low volume group were generally similar with respect to their ability to obtain medical care and their relationship with their doctor.
- MSOC and non-MSOC patients of physicians in the medium volume group were similar with respect to various demographic variables. However, compared to MSOC patients, non-MSOC patients:
 - Had visited more doctors in the last 12 months;
 - Were more likely to go to emergency to obtain a prescription renewal;

¹¹ Non-billing physicians never or rarely billed for incentive payments.

¹² Maternity patients were patients of physicians who provided pre- and post- natal care and billed for maternity incentive payments.

- Provided more negative ratings regarding their doctor's knowledge of their medical history;
 - Were less likely to feel they were partners with their doctor regarding their own health;
 - Provided more negative ratings regarding their doctor's explanations about what they could do to improve their own health; and
 - Were less likely to recommend their doctor to family members or friends.
- MSOC and non-MSOC patients of physicians in the high volume group were similar with respect to various demographic variables. However, compared to MSOC patients, non-MSOC patients:
 - Had visited more doctors in the last 12 months;
 - Were more likely to go to a walk-in clinic to receive care; and
 - Were more likely to have had an unexpected overnight stay in hospital.

5.4.4 Comparison with the 2009 Patient Survey

Patients in the non-biller group in the 2012 survey were generally younger and healthier than patients in the non-biller group in the 2009 survey. In addition, patients in the 2012 survey rated their relationship with their physician higher than did patients in the 2009 survey. However, the two groups of patients provided similar ratings regarding their care and treatment plans.

Although there were some differences, patients in the low, medium and high biller groups were generally similar in the 2009 and 2012 surveys with respect to demographic characteristics and their physicians' practices. Across all groups, patients in the 2009 survey were more likely to visit their doctor than were patients in the 2012 survey. Patients in the medium and high biller groups generally provided higher ratings in the 2012 survey regarding their relationship with their doctor and their care and treatment plan.

For the most part, patients in the maternity groups in the 2009 and 2012 surveys were very similar. One of the major differences between the two surveys, however, was the finding that a substantial proportion of maternity patients in the 2012 survey received the majority of their prenatal care from someone other than their usual family physician (even though they had been selected from physicians who provided both pre- and post- natal care and had billed for maternity incentive payments). While this may have had some effect on who delivered their baby, it appears to have had little effect on patients' desire to remain with their usual family doctor in the long term.

It was not possible to compare MSOC and non-MSOC patients between the two surveys as the distinction between MSOC and non-MSOC patients and the effect of practice volume were examined only in the 2012 survey.

5.4.5 Policy and Program Implications

In summary, it appears that the effect of billing for incentive payments varies depending on the comparisons one makes. For example, for MSOC patients of physicians who are billing for incentive payments, patients in the high biller group experienced more positive effects than did patients in the low biller group (although patients in the medium and high biller groups were similar). In contrast, MSOC patients in the non-biller group were similar to MSOC patients in the biller group, and MSOC and maternity patients were similar with respect to non-maternity related issues.

The effect of practice volume appears to be greatest for patients in the medium and high volume groups. That is, MSOC and non-MSOC patients in the low volume group were similar. In the medium volume group, MSOC patients provided more positive ratings regarding their doctor's knowledge of their medical history, were more likely to feel they were partners with their doctor regarding their own health, and provided more positive ratings regarding their doctor's explanations about what they could do to improve their own health than non-MSOC patients did. In the high volume group, non-MSOC and MSOC patients provided similar ratings regarding their physicians. However, compared to MSOC patients, non-MSOC patients were more likely to access services in a walk-in clinic and to have had an unexpected overnight stay in hospital.

It is unclear why the ratings of physicians differed in the medium volume group but not in the high volume group. It may be that in the medium volume group, non-MSOC patients have a higher need or desire to have a stronger relationship with their family physician than their doctor can provide, thus resulting in lower ratings. In the high volume group, because the physician has many MSOC patients and may treat everyone similarly, both MSOC and non-MSOC patients may receive sufficient attention from their doctors, thus resulting in similar ratings.

Comparisons between the 2009 and 2012 surveys indicated that patients' use of health care services had generally remained the same, although their perceptions of their relationship with their doctors had generally improved. These findings must be interpreted with some caution, however, as the 2009 sample likely included both MSOC and non-MSOC patients whereas the 2012 sample (for these comparisons) included MSOC patients only.

Taken together, the findings from the 2012 survey suggest that high billing levels and medium and high volume levels have positive effects on patient care and the patient experience. GPSC may wish to consider how it can continue to support all family physicians (but particularly those who are low billers of incentive payments and/or who have low practice volumes) in order to improve patient care.

5.5 Discussion of GP and Patient Surveys

Physicians who were high billers provided more positive ratings than those who were low billers regarding the effectiveness of the incentive payments on themselves, their patients and family practice in BC. Although these findings were consistent with expectations, they were not

a foregone conclusion as family physicians have also noted that considerable time and effort may be involved in billing for some of the incentive payments.

In general, physicians who had more attached patients (that is, a high volume of MSOC patients) also provided more positive ratings than those who had fewer attached patients (that is, a medium volume of patients).

Billing level, but not volume level, had a positive effect on physicians' ratings regarding the overall effectiveness of, and their satisfaction with, the incentive payments (with high billers providing more positive ratings than low billers). In addition, compared to physicians who worked part time, physicians who worked full time provided more positive ratings regarding the effect of the incentive payments on themselves, on their ability to provide better patient care, and on patients' ability to access care. These findings suggest that physicians who are more familiar with the incentive payments feel they are better able to meet their patients' health care needs and that their knowledge and experience are recognized and valued.

The finding that younger physicians and those that have been in practice for a relatively short period of time feel more positively about the effect of the incentive payments on both patients' ability to access care and family practice in BC is heartening as it suggests that the sustainability of family practice is improving in the province.

Findings from the patient survey were consistent with those from the physician survey. For example, physicians who were high billers of incentive payments felt they were able to provide better patient care compared to physicians who were low billers, perhaps because the physicians felt they had the time to spend with patients addressing their concerns, to develop care plans (as appropriate), and to monitor progress over time. Compared to MSOC patients of physicians who were low billers, MSOC patients of physicians who were high billers rated their relationship with their physician more positively and were more willing to recommend their physician to others suggesting that they were happier with the care they were receiving. Patients who are satisfied with their doctor and the care they are receiving may be more likely to seek preventive care, to follow through on recommendations provided by their physician, and to be active participants in their own health care.

Findings from the patient survey are also compatible with the goals of various GPSC initiatives. For example, the findings suggest that patients who have been with the same doctor for more than two years and who felt they could access their physician through an office-based practice provided more positive ratings regarding their relationship with, and their confidence in, their doctor. While these findings may not be unexpected, it is noted that patients who were attached to their physician (that is, MSOC patients) provided more positive ratings regarding their ability to access care and their confidence in their doctor than those who unattached (that is, non-MSOC patients).

In addition, attached (i.e., MSOC) patients were less likely to go to the emergency department and/or to have had an unexpected overnight hospital stay in the last 12 months, suggesting that they may be healthier than those who are unattached. These findings are

consistent with those reported by Hollander, Kadlec, Hamdi and Tessaro¹³ [3] who found that for higher care needs patients, the more attached patients were to a specific primary care practice, the lower the overall annual costs were for the health care system, primarily because of a reduction in the use of hospital services.

Older patients and those who considered themselves to have very good or excellent health provided more positive ratings than those who were younger and/or in poorer health. One interpretation of these findings is that older individuals may be more likely to provide positive ratings regarding their health care than younger individuals, regardless of the quality of the care they are receiving. Further, individuals who feel good about their health may feel more positive generally (and, in this case, those feelings may translate into more positive attitudes towards their physician). An alternative explanation is that, as a result of the incentive payments, physicians are able to spend more time with their older patients (for example, developing care plans or addressing multiple health concerns) and as a consequence, the patients' health is improving. As the patient survey data do not enable these alternative explanations to be addressed directly, this is an area that could be explored further.

Overall, the findings from the physician and patient surveys indicate that at least some of the operational changes GPSC has put in place over the last 10 years are having a positive effect on primary care in BC as they are improving both the sustainability of family practice and patient care. One of the challenges for GPSC is to provide opportunities to encourage more physicians to be medium or high billers of the incentive payments in order to facilitate further growth. An increase in the number of physicians who are medium or high billers of incentive payments will also have financial consequences. This may be offset, however, by improved patient care through increased access to and continuity of care, as well as a decrease in costs associated with the use of specialist, emergency room and hospital services.

¹³ Hollander, M.J., Kadlec, H., Hamdi, R., & Tessaro, A. (2009). Increasing value for money in the Canadian healthcare system: New findings on the contribution of primary care services. *Healthcare Quarterly*, 12 (4), 30-42.

6. KEY FINDINGS FROM THE PRACTICE SUPPORT PROGRAM

6.1 Introduction

There has been a continuing evolution for the PSP Learning Modules over time, and a commensurate evolution of the evaluation of the modules. For the first four modules (Advanced Access, Chronic Disease Management, Group Visits, and Patient Self Management) the evaluation consisted of a survey at the end of the Learning Module (i.e., the end of the third learning session). Starting with the Adult Mental Health Learning Module we instituted Train the Trainer Evaluations. The TTT evaluations have evolved. Figure 6-1 presents the current research design for the TTT evaluations. For the Adult Mental Health Module we also started to collect follow-up data at 3 to 6 months after GPs completed the module. Figure 6-2 presents the enhancements which have been made to the evaluations over time in terms of data collection. We now collect data at baseline, at the end of the module and at 3-6 months after completion of the Learning Module. The plan is to include patient experience surveys starting with the Shared Care (COPD and Heart Failure) and MSK modules.

In this section we shall present data from five evaluation reports on PSP Learning Modules. The evaluation reports presented in this section are the following:

- Final Report: End of Module Surveys ~ Fifth Annual Report on the Original Four Learning Modules (Surveys Received to March 31, 2013)
- Final Report: First Report on the Evaluation of the PSP Shared System of Care (COPD) Learning Module (September 2012 to May 15, 2013)*
- Final Report: First Full Report on the Evaluation of the PSP End of Life Learning Module (September 2011 to March 31, 2013)
- Final Report: First Evaluation Report on the PSP Child and Youth Mental Health Learning Module (April 2012 to May 15, 2013)*
- Final Report: Fifth Report on the Adult Mental Health Learning Module (Surveys Received to March 31, 2013)

* Data collection went to May 15, 2013 to maximize the number of respondents

Figure 6-1: Evaluation of the Train the Trainer Process

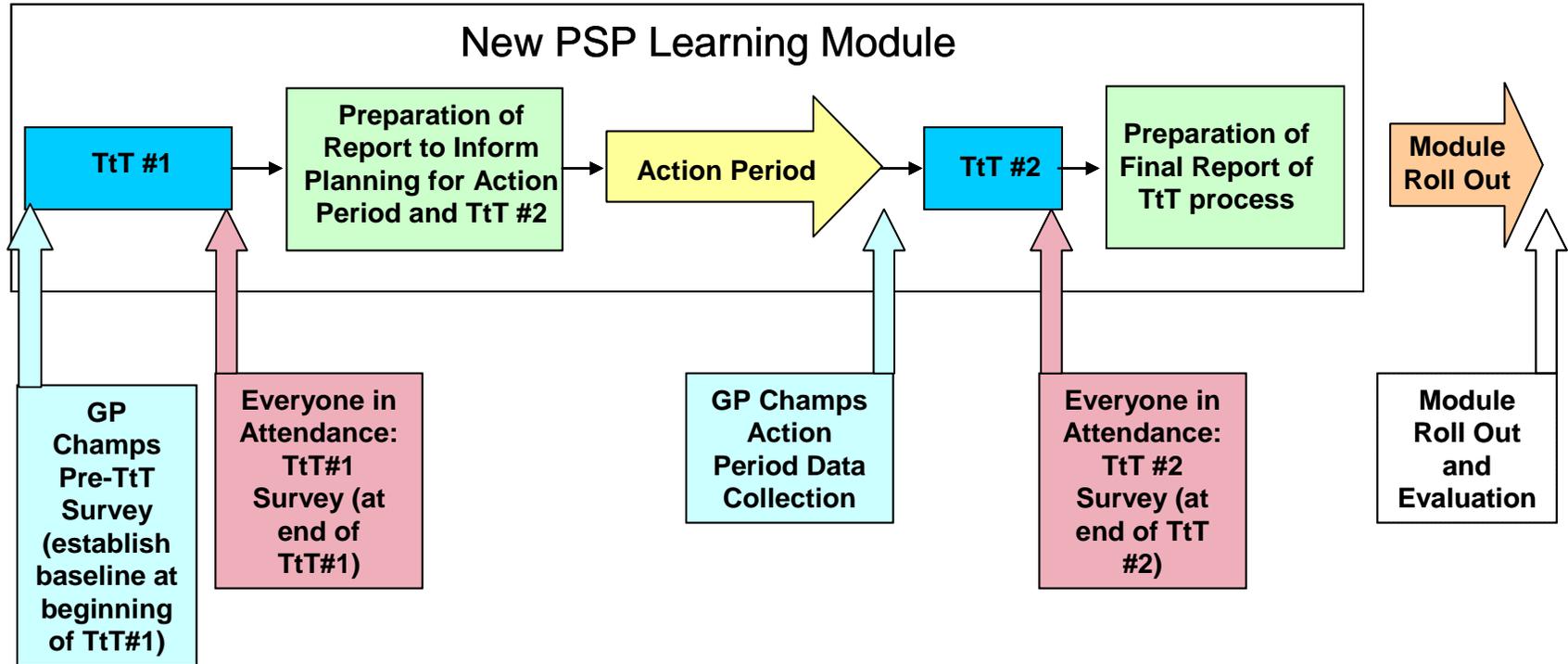


Figure 6-2: Overview of the Evaluation Data Collection Points for PSP Learning Modules

PSP Module	Participant Group / Survey Version	Type of Survey (& When Administered)		
		Baseline (Prior to, or at the beginning of, LS-1)	End-of-Module (At the end of LS-3)	3-6 months Follow-up (3-6 months after LS-3)*
First Modules: • Advanced Access/Office Efficiencies • GMV / PSM / HL • CDM (CDM+)	GPs		✓	
	MOAs/Office Staff		✓	
Adult Mental Health (AMH)	GPs		✓	✓
	MOAs/Office Staff		✓	
End of Life (EOL)	GPs	✓	✓	✓
	MOAs/Office Staff	✓	✓	
	HCC/PC Nurses	✓	✓	
(CYMH) Child and Youth Mental Health	GPs	✓	✓	✓
	MOAs/Office Staff	✓	✓	
	School Participants	✓	✓	
	Specialists/Clinicians	✓	✓	
Shared Care (COPD) ⁺	GPs	✓	✓	✓
	MOAs/Office Staff	✓	✓	
	Respirologists/RTs	✓	✓	

* These surveys are sent directly to the GPs who completed the module by the BCMA and are returned to Hollander Analytical Services for analysis.

+ It is anticipated that patient experience surveys will be incorporated into the evaluations for the Shared Care (COPD and HF) and MSK Learning Modules

6.2 Key Findings Regarding the Quality of the Learning Modules

Table 6-1 presents findings about the perceived quality of the Learning Modules themselves. As can be seen the overall impressions across all Learning Modules was very positive. Respondents were asked to what extent they agreed or disagreed with a series of statements. The percentages in the table represent the percentage of respondents who agreed or strongly agreed with each statement.

In terms of overall impressions, the results were very positive across all Learning Modules. The scores across the four statements, and the seven learning modules ranged from 79.2% to 100%, with most scores being in the 90% range. Thus, learning module attendees had a consistently positive view of the overall quality of the learning sessions themselves.

With regard to operational aspects of the learning modules, high percentages of respondents agreed that the content was informative, that there was enough time to discuss ideas, and that the networking and sharing of information with colleagues was helpful. We also included some negatively worded questions to see if respondents were providing considered responses to the questions rather than just ticking everything off as being positive. It appears that the respondents did consider the specific questions. For example, only about one third, or less, of respondents indicated that the pacing of the sessions was too slow.

With regard to other topics, high percentages of respondents agreed that they had learned something new that they had incorporated into their practices. Fairly high percentages of GPs also agreed that PSP Regional Support Team (RST) members and GP Champions made them feel important and valued. Similarly positive responses were also provided by Medical Office Assistants (MOAs).

6.3 Key Findings Regarding the Impacts and Outcomes of the Learning Modules

Table 6-2 presents data on the perceived impacts and outcomes, for GPs, of the learning modules on their practice and patients. Relatively high percentages of GPs agreed that attending the learning modules had helped them to improve their practices and improve patient care.

In terms of improvements in office functioning and working relationships, some 81.5% of GPs who had attended the advanced access/office efficiency learning module agreed that their office functioned better after having attended the learning module and 50.2% indicated that they could see more patients. Most of the other modules were not designed to improve office functioning *per se*. Nevertheless, with a few exceptions, improvements were reported by 40% to 60% of GPs.

In terms of perceived outcomes, high percentages of GPs indicated that they had implemented changes to their practices and that attending the learning module had had a positive impact on their practice.

Table 6-1: Key Findings Regarding the Learning Modules (% Agree or Strongly Agree) for GPs

		Four Original Modules			Adult Mental Health (%)	Child & Youth Mental Health (%)	Shared Care (%)	End of Life (%)
		Advanced Access/Office Efficiency (%)	Patient Self Management/ Group Medical Visits/Health Literacy (%)	Chronic Disease Management (%)				
Overall Impressions	The material was clear and informative	96.8	94.7	94.4	90.8	93.8	94.4	91.7
	The learning sessions were held at a convenient time	88.3	93.9	91.2	90.1	79.2	94.4	90.5
	The goals and objectives of the learning sessions and action periods were understood	97.5	97.0	93.9	90.2	87.5	100.0	92.3
	The facilitators were well informed and knowledgeable	96.7	94.6	98.3	93.6	95.8	100.0	97.9
Aspects of the Learning Modules	Time allocated to learning sessions was about right	83.4	87.0	75.1	84.1	85.4	77.8	87.0
	Content was informative	93.5	96.2	87.8	93.3	93.8	94.4	94.4
	Pacing of sessions was too slow	36.6	35.1	34.8	24.0	27.1	16.7	30.8
	Enough time to discuss ideas	91.6	93.1	83.3	78.1	62.5	88.9	85.0
	Group activity in the learning session was helpful	82.3	80.9	74.5	-	-	72.2	77.2
	Networking and sharing of information was helpful	92.3	89.1	84.5	85.5	93.8	93.3	88.4
Other Topics	Required activities could be completed in time allocated	90.7	85.3	81.5	52.3	54.2	83.3	76.1
	Respondent learned something new that he/she incorporated into his/her practice	91.1	87.6	90.4	94.3	93.8	88.9	93.5
	The goals and measures were appropriate and relevant	91.2	86.9	86.2	83.9	85.4	100.0	88.4
	PST and GP Champs made respondent feel important and valued	89.5	90.0	85.0	86.4	83.0	88.9	85.8

Table 6-2: Perceived Impacts and Outcomes from Attending the Learning Modules for GPs (% Agree or Strongly Agree)

		Four Original Modules			Adult Mental Health (%)	Child & Youth Mental Health (%)	Shared Care (%)	End of Life (%)
		Advanced Access/Office Efficiency (%)	Patient Self Management/ Group Medical Visits/Health Literacy (%)	Chronic Disease Management (%)				
Perceived Impact on Practice and Patients	Respondent improved his/her practice	90.6	88.7	80.3	89.5	91.7	100.0	91.9
	Respondent's stress levels reduced	65.1	49.8	26.4	42.0	50.0	22.2	38.0
	Respondent improved patient care	71.7	87.1	76.7	89.7	89.6	94.4	94.4
	Patients seem happier since the completion to the module	62.0	52.1	30.5	47.7	63.6	29.4	32.9
Perceived Impact on Working Relationships and Office Functioning	Respondent's working relationship with his/her MOA improved	66.5	52.0	46.0	45.7	47.1	22.2	48.8
	Respondent has closer working relationship with his/her MOA	70.9	58.4	54.3	47.6	54.6	22.2	52.2
	Respondent's office functions better since completing the module	81.5	44.8	44.3	35.1	-	27.8	30.4
	Respondent can see more patients	50.2	26.7	11.2	10.1	6.3	16.7	6.6
Perceived Outcomes	Respondent implemented changes to his/her practice based on the learning module	91.4	87.2	88.2	92.0	95.8	94.4	91.0
	Participating has had a positive impact on the respondent's practice	90.9	81.6	82.0	87.1	97.8	83.3	91.1
	The broader PSP initiative has made respondent feel more connected to other family physicians	78.3	79.0	65.2	72.8	81.3	66.7	-
	The broader PSP initiative will encourage new residents to adopt full service family practice	60.8	61.2	45.8	48.9	63.8	38.9	-

6.4 Key Findings Regarding the Specific Modules

6.4.1 Advanced Access and Office Efficiency

The main purpose of the Advanced Access module was to reduce wait times for patients. Table 6-3 shows that 61.5% of GPs reported decreased patient wait times for regular appointments. The corresponding number for third next available appointments was 67.9%. As can be seen in Table 6-4, there were significant reductions in wait times after GPs completed the module. For example, the average wait time reduction for all GPs (including those who had not reduced their wait times) was reduced by 2.75 days (from 4.33 days to 1.58 days) for the third next available appointment. The corresponding reduction for GPs who had reduced their wait times was 4.15 days (from 5.66 to 1.51 days). With these results some 67.9% of GPs reported that they had been able to reduce their patient backlog.

Table 6-3: Number and Percentage of GPs Who Reported a Change in Wait Times Following the Advanced Access Learning Module (All Data Combined)

		Urgent Appointments		Regular Appointments		Third Next Available Appointments	
		N	%	N	%	N	%
Change in Appointment Wait Times	No Change	130	58.6	75	33.9	60	28.7
	Decreased Wait Times	90	40.5	136	61.5	142	67.9
	Increased Wait Times	2	0.9	10	4.5	7	3.3
	Total	222	100	221	100	209	100

Table 6-4: Means (M) and Standard Deviations (SD) for Estimated Wait Times (in Days) Before and After Completion of the Advanced Access Learning Module (All Data Combined)

	Wait Times (Days) for Urgent Appointments				Wait Times (Days) for Regular Appointments				Wait Times (Days) for Third Next Available Appointment			
	N	M	SD	Sig.	N	M	SD	Sig.	N	M	SD	Sig.
All GPs – Before	222	1.27	2.36	**	221	4.98	4.99	**	209	4.33	5.69	**
All GPs – After	222	0.41	0.66	p<.001	221	2.46	2.85	p<.001	209	1.58	2.44	p<.001
GPs Who Reduced Wait Times – Before	90	2.56	3.23	**	136	6.45	5.24	**	142	5.66	6.17	**
GPs Who Reduced Wait Times – After	90	0.39	0.61	p<.001	136	2.17	2.18	p<.001	142	1.51	1.79	p<.001

6.4.2 Patient Self-Management and Group Medical Visits

After completing the module, high percentages of GPs (88.8%) agreed that they were confident helping their patients adopt self managed care and that they were partners with their patients in their patients’ care (92.7%). The GPs’ perceptions that their patients liked the patient self-management (PSM) approach were also generally high, with most GPs indicating that their

patients: were satisfied with their care (68.0%); seemed to be more involved in their own care (74.4%); liked setting and tracking their self-management goals (75.8%); and overall liked the PSM approach (73.7%).

Large majorities of GPs agreed that they felt comfortable conducting Group Medical Visits (GMV) (74.8%) and the impact on their patients was positive (e.g., 80.5% agreed that their patients liked the peer learning they are exposed to in the context of group medical visits.)

Overall PSM and GMV were well received by GPs. For example, relatively low percentages of GPs agreed that scheduling group visits was difficult for their MOAs (44.5%) and that working on self-managed care with their patients was too time consuming (26.4%), both results indicating that fewer GPs perceive these issues as barriers. A large percentage of GPs (87.9%) planned to make self-management part of their practice, although fewer (60.9%) indicated that they would make group medical visits part of their practice. About two-thirds of GPs agreed that learning about these two topic areas had increased their satisfaction with work (64.2% for GVM and 70.3% for PSM).

6.4.3 Chronic Disease Management

There were no end of module surveys for the chronic disease management learning module in fiscal 2010/11. The data presented here are for the four years to the end of March 2010. The CDM module went through some changes over the years. It has been a stand alone module and has also been combined with GMV and PSP into a module called CDM++

Over the first four years, large percentages of physicians who attended the CDM stand-alone (87.4%) and the CDM++ combination (88.9%) learning modules agreed or strongly agreed that attending the module had allowed them to take better care of their patients with chronic disease. Attending the module had helped them to identify patients with chronic disease (84.4% in both modules agreed or strongly agreed) and prompted them to develop a CDM patient registry (82.9% and 88.9% agreed). Slightly lower, but still high, percentages agreed or strongly agreed that their patients seemed more satisfied with care (62.3% and 68.9%), prompted them to actively consider CDM guidelines in care delivery (56.1% and 72.8%) and generally increased their satisfaction with work (56.1% and 72.8%).

6.4.4 Key Findings Regarding the Shared Care (COPD) Module

The Shared Care (COPD) Learning Module was implemented relatively recently. Initially it included COPD but more recently Heart Failure has also been added. Data were collected from September 2012 to mid-May 2013 in terms of baseline and end of module surveys. Not enough time had passed to have data for the 3-6 month follow-up or the patient experience survey. While there were baseline data for up to 116 GPs, data for the end of module survey were only available for 18 GPs.

The GPs unanimously agreed/strongly agreed that the Shared Care Learning Module had helped them improve their practice and that attending the module had increased their knowledge and awareness of community resources for COPD patients. Large percentages also agreed that

they had improved patient care (94.4%) and that participating in the module had a positive impact on their practice (83.3%). Half of the GPs, however, agreed that their collaborations with other health care providers (HCPs) in general had improved.

More generally, a large percentage of GPs agreed/strongly agreed that: they were able to use what they had learned in their practice (94.4%) and that they had implemented changes based on the learning module (94.4%). This finding is also consistent with other PSP learning modules. Two-thirds of respondents agreed that the module had provided valuable insights about practice-based quality improvement. In terms of the general impact of the PSP program, 66.7% of all GPs attending the module agreed or strongly agreed that the broader PSP initiative has made them feel more connected to other family physicians.

In terms of specific COPD related issues, large percentages (more than 70%) of GP respondents agreed or strongly agreed that completing the module had:

- Made them feel more comfortable with helping their COPD patients and sharing their care with other HCPs (100%);
- Enhanced their understanding of COPD patients' journey in obtaining care (100%), with 83.3% of GPs agreeing that they were partners with their patients in their patients' care;
- Enhanced their skills in:
 - Identifying patients with COPD (100%),
 - Developing an action plan for COPD patients (88.9%),
 - Supporting a patient in quitting smoking (72.2%);
 - Accessing and referring patients to local community resources (88.9%); and
 - Communicating their patients' needs and wishes to other HCPs (77.8%).

With regard to building relationships with other HCPs, large percentages of GPs agreed or strongly agreed that attending the module had:

- Increased their participation in collaborative care with respirologists and/or RTs (83.3%); and
- Enhanced their ability to develop and maintain "shared care" relationships with other medical specialists (72.2%).

6.4.5 Key Findings Related to the End of Life Learning Module

We had 18 months of data for this module so data are available from the baseline survey, the end of module survey and the 3-6 month follow up survey. Patient experience surveys were not administered due to the sensitive nature of this topic and the fragility of the patients involved.

At the completion of the learning module, an increased percentage of GP offices had developed a registry for patients with EOL concerns (an increase from 8% of GPs at baseline to 67% at end of module). An increased percentage of GPs also followed the most recent clinical guidelines for palliative care (an increase from 62% at baseline to 88% at module completion).

Participating in collaborative care with HCNs rose modestly (60% at baseline responded always and frequently, and 65% at module completion) and conducting home visits rose modestly, (from 43% of GPs at baseline to 49% at completion reporting that they “always” or “frequently” conduct these). In a parallel question, the HCNs rated their ability to organize home visits with GPs, and this had not changed (26% of the HCNs rated this good/very good at baseline, and 25% (of 8 HCN respondents) at the end of the module). Increased percentages of HCNs rated the completeness of the medical information received from GPs as good/very good (64% at module completion compared with 28% at baseline). Communication with the GPs’ office was rated good/very good by the majority of nurses (67%) at module completion (this question was not asked on the baseline survey).

At the end of the EOL module, 96% to 100% of the GPs (increased from 79% to 87% at baseline) were confident in: identifying patients who may benefit from palliative approach to care; initiating a conversation about end-of-life care with a patient and his/her family; guiding the patient with regards to his/her goals of care at the end of life; communicating their patient’s needs and wishes to other care providers, as appropriate; and supporting a patient during the terminal phase of his/her illness and address his/her concerns.

At 3-6 months after completing the EOL module a lower percentage of the GPs had a registry for patients requiring EOL care (52%, compared with 67% at the end of the module), indicating that some “early adopters” stopped using it. However, increased percentages of GPs had an action plan (84%, up from 68% at module completion) and followed the most recent clinical guidelines (94% from 88%). Participation in collaborative care with HCNs had increased over time (percentage of GPs increased to 90%, and frequency of collaborations within individual GPs increased).

Most GPs indicated a self-reported increase in confidence in their ability to: identify patients who may benefit from the palliative approach to care (84% of GPs); initiate conversations about EOL care (86%); to guide their patients with regards to the patient’s goals of care at the end of life (90%); to develop action plans (88%); and to support their patients during the terminal phase of the illness (76%) as well as the patients’ family during grief and bereavement (75%).

As an overall assessment of the EOL module on the 3-6 month follow-up survey, large percentages of GPs rated the following as at least moderately high/positive:

- Their success of implementing the tools and skills into their practice (93%);
- The probability that they will continue to use the tools and skills in their practice (95%);
- Using their MOAs to help with EOL-related care management in their practice (55%);
- Their involvement with EOL professionals in the community (75%); and
- The overall impact of the EOL module on their patients requiring EOL care (92%) and their patients’ families/loved ones (93%).

6.4.6 Key Findings Related to the Child and Youth Mental Health Learning Module

The Child and Youth Mental Health (CYMH) Learning Module was implemented relatively recently and data were available for fiscal 2010/11. However, the timing for the module has been such that only baseline and end of module surveys were completed by mid-May 2013. This module included not only GPs and MOAs, but also specialists, mental health clinicians and school based participants (e.g., school counselors).

When asked for their perceptions of how things were now as compared with prior to their attending the CYMH learning module. Large percentages of GPs and school based participants agreed that children and parents now:

- Seemed more likely to be identified and not fall through the cracks (79.2% of GPs, all six responding school based participants);
- Were more likely to have a care plan to help with their MH concerns (89.6% of GPs, and 66.7% of school based participants);
- Were more likely to adhere to their care plan (60.4% of GPs, and 50.0% of the school based participants); and
- Seemed to have better communications with their GP, as observed by 66.7% of the school based participants.

On questions specific for the GP participants, high percentages agreed or strongly agreed that attending the CYMH learning module had:

- Enhanced their skills and confidence in screening (skills 100%; confidence 93.6%), diagnosing (95.8%; 91.7%), and treating (77.1%; 83.3%) mental health conditions in children and youth.
- Increased their comfort level with helping their young patients who required mental health care (74%);
- Increased their confidence in using psychotherapeutic interventions with children and youth (76.1%), with some GPs (19.2%) agreeing that they decreased their frequency of prescribing medications for mental health in children and youth, if appropriate;
- Increased their ability to build rapport with their young patients (72.9%);
- Increased their understanding about confidentiality (62.5%);
- Increased their overall awareness of resources for mental health care in the community (93.8%); and
- Increased their comfort with referring their young patients to the Strongest Families Program (66.7%).

Increases in GPs' confidence ratings on a range of activities related to providing mental health care to children and youth in their practices were noteworthy. The following presents information on ratings on the baseline versus end-of-module surveys for GPs. The percentage of GPs who rated their confidence in identifying children and adolescents at risk as high/very high

rose from 25.1% and 35.0% (respectively) at baseline to 61.4% and 70.4% at module completion. Also, providing guidance/information rose from 19.7% of GPs at baseline to 68.2% at module completion.

- Screening children and adolescents for the three major mental illnesses rose:
 - From 25.1% of GPs at baseline to 84.1% at module completion for depression;
 - From 19.7% to 70.5% for ADHD; and
 - From 20.2% to 84.1% for anxiety.
- Treating children and youth for the three major mental illnesses rose:
 - From 8.6% to 38.6% for using medications; and
 - From 5.6% to 36.4% using psychotherapeutic interventions.
- With regard to communications and collaborations, the GPs' confidence also rose:
 - From 38.9% to 79.6% for communicating their patient's needs to other mental health care providers, as appropriate;
 - From 24.3% to 54.6% for communicating their patients needs to community partners (e.g., school counsellors), as appropriate;
 - From 19.1% to 50.0% for collaborating with community partners; and
 - From 44.3% to 75.0% for referring their young patients to specialists, as appropriate.

6.4.7 Key Findings Related to the Adult Mental Health Learning Module

The data presented here cover a three and a half year period. The data presented are for fiscal 2010/11 (called Wave Five) and for the overall three and one half year time period.

In terms of impact, it was found that there was high agreement that attending the module had improved the GPs' practices (90.6% in wave 5; 89.5% overall); patient care (93.8%, 89.7% overall); and GPs' knowledge about AMH resources in the community (92.7%, 82.3% overall) and that attending the AMH module had enhanced the GPs':

- Confidence and ability to screen, diagnose and treat MH conditions (over 80% in wave 5 and overall);
- Ability to conduct the diagnostic assessment interview (86.5% in wave 5; 85.3% overall);
- Ability to coach their patients with the Antidepressant Skills Workbook, encourage the use of the Bounce Back program, coach patients in CBIS skills (over 84% in wave 5; over 80% overall); and
- Ability to develop care plans for patients requiring mental health care (80.2% in wave 5; 77.3% overall).

It was found that GPs had high confidence in their abilities to: diagnose depression (100% in wave 5, 99.8% overall); treat depression (100%, 98.9% overall); prescribe medications for mental health concerns (96.8%, 96.2% overall); assess their patients' problems and strengths

(94.7%, 92.9% overall); develop systematized care plans (82.8%, 78.3% overall); offer and coach the Antidepressant Skills Workbook (83.0%; 80.8% overall); and treat mental health disorders other than depression (86.2%; 84.5% overall). Knowledge about nonpharmacological interventions was also rated high (93.6%, 87.7% overall). Patients' ability to return to work following cognitive behavioural interventions was rated better/much better by 70.8% of GPs (overall 66.7%). Patients' ability to continue to work (with cognitive behavioural interventions) while experiencing mental health problems was rated better/much better by 81.1% of GPs in wave 5 (81.4% overall). The GPs' usage, confidence in, and comfort with using the new tools and skills for providing mental health care to their patients was enhanced by attending the AMH module. In an overall assessment of the AMH module:

- 93.1% (92.9% overall) rated the implementation of the new tools and practices into their practice as at least moderately successful;
- 100% (98.7% overall) would continue to use the new tools and skills with at least moderate likelihood;
- 95.7% (94.7% overall) rated the impact on their patients as positive;
- 73.1% (62.6% overall) involved their MOAs in helping them manage MH in their practice;
- 73.1% (64.6% overall) rated their understanding of the fee codes and billing for mental health care as good or very good; and
- While the majority (55.6%, 57.7% overall) indicated that their prescribing behaviour had not changed by the module, 11.1% (30.3% overall) of GPs reported that they had decreased their prescribing of medications for patients with mental health concerns.

7. CONCLUSION

It appears, based on the data, that the Full Service Family Practice Program and the Practice Support Program have been, and continue to be, successful primary care initiatives. There is solid evidence of cost avoidance as a result of the use of incentive based care by GPs. There is also evidence that the increased use of incentives is related to increasing patient attachment, or the continuity of care. This in turn is related to reductions in the costs of care. Also, the more GPs use the incentives the more likely they are to have a positive impression of the GPSC and its initiatives, and patients of high billing GPs have a better relationship with their GPs.

Finally, for the PSP, the evaluation results are consistently positive across types of learning modules and over time. The PSP seems to be a major success story for the GPSC.

Appendix A:
Knowledge Development Framework

Time for a Paradigm Shift:

Managing Smarter by Moving from Data and Information to Knowledge and Wisdom in Healthcare Decision-Making

Marcus J. Hollander, Christopher Corbett and Paul Pallan

Abstract

Senior decision-makers in the Canadian healthcare system have to continuously make significant, and complex, policy and program decisions. However, it appears that, often, the evidence they have available is fairly simple descriptive information, collected for operational purposes. Trying to solve complex problems with fairly simple data may lead to suboptimal decisions. This article presents a new knowledge development system (KDS) that should allow senior decision-makers and others to manage smarter and take their decision-making to the next level. A KDS represents the integration of information systems, and research and analysis, into one system. It can generate sophisticated, strategic information around complex issues, which should ultimately lead to wiser decisions. This article describes the KDS, provides an example of a current KDS and concludes by presenting a self-diagnostic tool for decision-makers to allow them to determine whether their organization could benefit from a KDS.

Healthcare organizations such as ministries of health, regional health authorities and other organizations collect large amounts of data. However, they appear to struggle with translating these data into strategic knowledge and insights that can be used

as inputs into evidence-based decision-making at the clinical, operational, administrative, policy and executive levels. Several reasons seem to account for this difficulty. Information systems are often developed to meet the *operational* needs of different organizational components. For example, separate systems are developed for finance, human resources and care delivery. Some types of data that exist outside the organization and are critical for certain types of analyses – such as data on the population served (for population health and epidemiological analyses) – may not be readily available or, if available, may not be systematically integrated into the data architecture of the organization. In addition, over the past several years, the focus seems to have been on developing information systems and electronic health records rather than on analyzing data to take maximum advantage of the data that are already available. Thus, organizations may have suboptimal knowledge development, not because of a lack of data but because the data that exist are not fully used to generate new knowledge. Finally, because data may not be used to meet the real needs of organizational actors (e.g., front-line care delivery staff, policy developers, planners etc.), people may not recognize the potential of existing information systems to provide insights into key issues. Thus, a separation often exists between collecting data and using the data to develop new knowledge in healthcare organizations.

A separation often exists between collecting data and using the data to develop new knowledge in healthcare organizations.

In order to obtain more enhanced information, a variety of attempts have been made to develop balanced scorecards, indicators, benchmarks, decision support systems, executive information systems, integrated patient records and so on. However, these efforts appear to have been met with limited success to date.

While we recognize that there is still considerable organizational value in existing information systems that provide data and descriptive information for operational purposes, we argue here for a major paradigm shift in which the priority focus is on *strategic* knowledge development rather than on operational information. Organizations that want to have more sophisticated and usable information may wish to consider developing a knowledge development system (KDS) to meet their strategic information requirements. Figure 1 shows how we can move from existing reality to data and information (using information systems), to knowledge (through sophisticated analyses of information), to more informed, contextually sophisticated and wise decisions, to the implementation of new policies and programs.

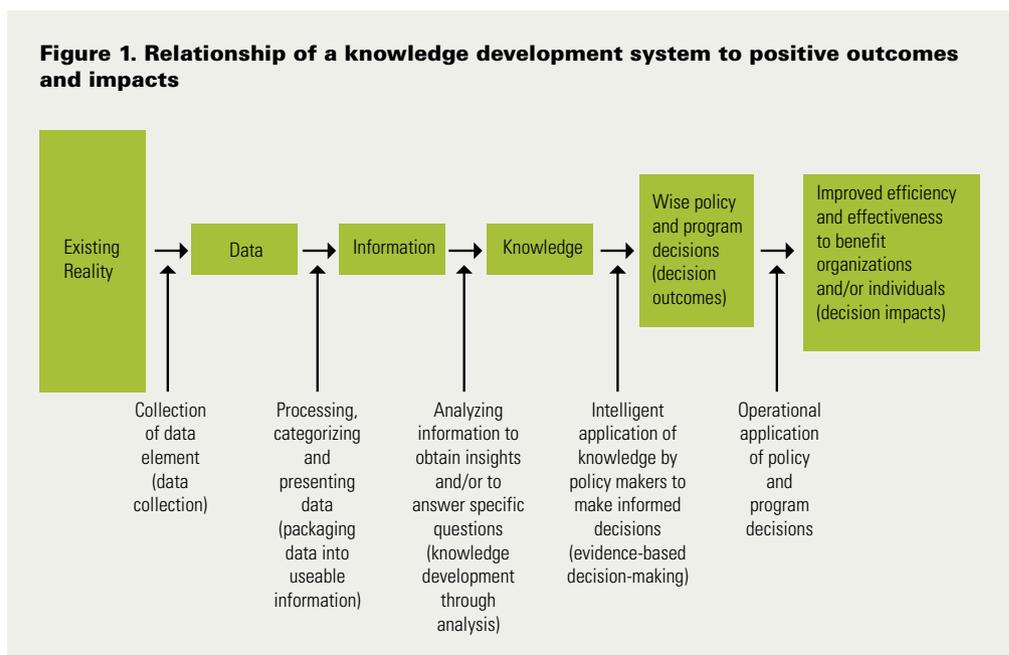
Components of a KDS

The first component of a KDS is what we refer to as an analytical database. This is an electronic space in which data extracts from a variety of existing corporate information systems are maintained on an ongoing basis. It should also include key information from external resources, such as information on the age and sex distribution of the population served. The data collected can be linked, across the data extracts, by using the same unique identifiers for organizations (e.g., hospitals), care providers (e.g., physicians) and patients once appropriate protocols have been put in place to ensure privacy or the data have been rendered anonymous.

The analytical database has many of the benefits of a completely integrated information system – the “Holy Grail” of informatics – but does not operate in real time and is therefore much easier to construct while providing many of the desired benefits of more complex systems. It can be established relatively quickly as it uses information already collected by the organization. Thus, a system of extracts from existing information systems is developed. These extracts can be done annually, quarterly or monthly, depending on the needs of the organization. Analysts then pull the data they need to conduct their analyses from the set of data extracts that have been developed. The analytical database team functions to support the members of the organization in obtaining their information needs quickly and in a manner that is suitable to them.

There are five levels in the KDS. The first three levels of the KDS refer to the levels of comprehensiveness of the analytical database. Level one may not contain client-specific data. Nevertheless, usable, strategic information can still be obtained. An example of a level one analytical database is the Statistics Canada Residential Care Survey. It contains data about care providers and the type and size of facilities (e.g., government-owned with 200 beds, or owned by a for-profit organization with 50 beds). There is also a cost breakdown (based on the budget), data on revenues and data on the number of clients at each of the five federal levels of care need. These data allow for the analysis of residential care services across provinces, across types of ownership and size, by the level of care needs of clients, and by cost per bed. For example, an analysis of long-term care facilities revealed that small facilities typically had a lower

Figure 1. Relationship of a knowledge development system to positive outcomes and impacts



per-bed costs than did medium and large facilities, and that the data did not appear to support the argument for economies of scale for larger long-term care facilities (Hollander 1994).

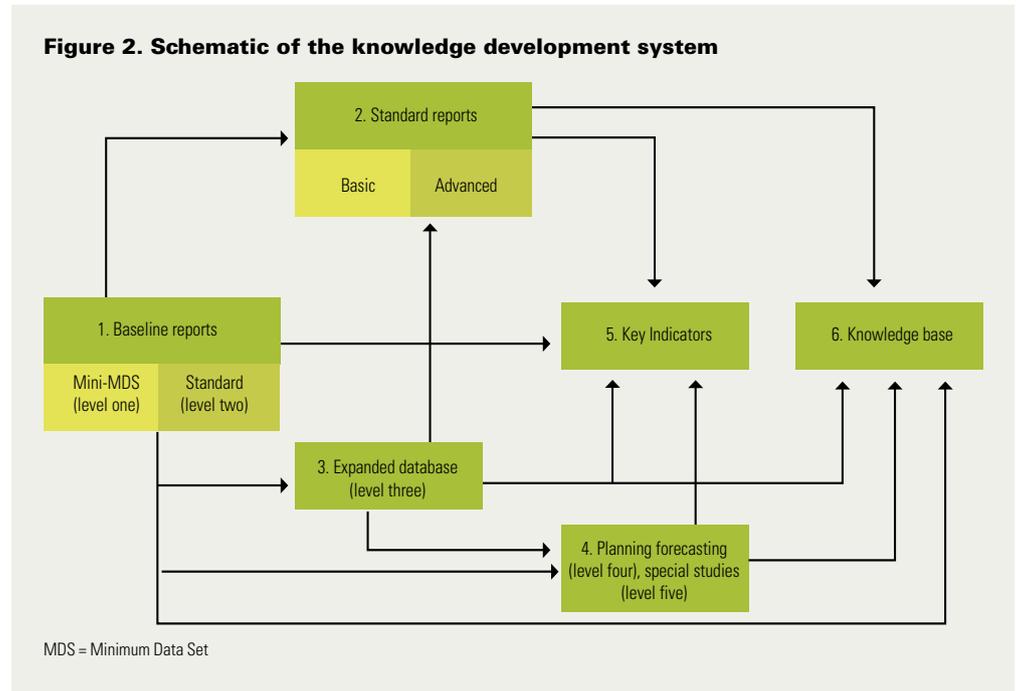
A level two analytical database is a partial database. It is typically the kind of database a service delivery organization or department would have. For example, community care access centres in Ontario have data on clients and providers that allow for a range of useful analyses. Other examples are the data available in hospitals and the hospital abstracts. Thus, level two analytical databases have data on client characteristics (and other client-specific data), presenting conditions, sources of referral, health status and care providers. In some cases, cost data may also be available at this level.

Level three analytical databases are more comprehensive, contain extracts from a wide range of service delivery databases and have all the elements captured in levels one and two. In addition, they build in modules for financial data, population demographics and other types of data. A key issue in developing level three analytical databases is to ensure compliance with privacy legislation. Fortunately, most privacy laws have provisions that allow for the protection of privacy while permitting data to be used for research and analysis purposes.

Level four in the KDS moves from the collection and storage of data to analysis. At this level, a small team of highly trained and experienced analysts can access the level three analytical database to develop new knowledge. Analysts can engage in a wide variety of knowledge development activities including scenario building, simulation and other forms of analysis.

Level five of the KDS includes a range of activities that are complementary to, but do not use or only partially use, administrative data. These activities focus on knowledge development through special, targeted studies on key topics of policy or program interest, surveys, program evaluation activities, quality assurance and so on.

A schematic of how the five levels of the KDS fit together to produce reports, indicators and a new knowledge base for future decision-making is presented in Figure 2. As is illustrated,



a KDS incorporates both basic and advanced standard reports. It supplements these reports with more in-depth and sophisticated analysis and special studies, surveys etc. that have policy and/or program relevance. Indicators are developed out of the analytical process. It is our view that this is the best route as it allows a consensus to develop on the relevance and meaning of the indicators through the analytical process and interaction with decision-makers. The key shortcoming of indicators developed on an a priori basis is that they are single items of information (e.g., low unit cost can be “good” and “efficient” or it can be “bad” because the organization is under-resourced or has engaged in cost shifting to patients). Thus, a priori indicators are end points and answer *what* but not *why*. For example, they can identify what the per capita admission rate is to a local hospital but cannot explain why this rate may be high or low compared to a provincial average.

Proposed Paradigm Shift (Managing Smarter)

It is our experience that policy makers, planners, clinicians and others appear to have resigned themselves to using suboptimal information for their decision-making. It is understandable that due to fiscal restraints and other factors the primary focus for organizations has been on operational data and day-to-day survival in a fiscally challenging environment. We, however, argue that taking even a modest amount of time to focus on strategic issues and developing new knowledge may pay significant dividends in terms of identifying new approaches to cost avoidance and greater value for money for the organization.

The KDS described in this article is relatively inexpensive and can be implemented fairly quickly.

Some of the key issues and challenges related to implementing a KDS are discussed below.

Structure and Costs

In the late 1960s and early 1970s, organizations had in-house analytical units (Hollander and Prince 1993). Such units, focused on high-level strategic analysis, could again be established inside an organization. Another option would be to hire a small team of experts in research, analysis and informatics. To be effective, this team should report to the chief executive officer or to a vice-president. Another option that has been used in some jurisdictions is for ministries of health to contract with a university-based research group. To date, most such approaches have mainly focused on levels one to four of the KDS. The costs of a KDS can be quite modest as only a small number of high-level analysts are required. Experience indicates that a well-functioning KDS usually more than pays for itself.

A Focus on Analysts

There are numerous examples of information systems advocates developing executive or management information systems. These systems contain various sets of aggregated data that can be readily accessed by decision-makers, but they are often quite expensive to develop. While basic operational data should be retained, at the strategic level fundamental differences between the executive information systems approach and the KDS are (1) in our view, senior executives do not wish to be analysts and would rather ask key policy questions and (2) executive information systems generally provide only simple descriptive data to address complex and multi-faceted policy and program issues. In the KDS, organizational actors formulate questions in discussion with the KDS staff, and the KDS staff conduct, as required, comprehensive and sophisticated analyses to answer, or at least shed new light on, the questions posed.

Corporate Priority on Knowledge Development

Organizations may wish to add a strategic knowledge development lens to their decision-making on issues related to data and information. For example, some software vendors develop software that works for operational purposes but from which data cannot be extracted for inclusion into an analytical database. Thus, software purchases and other related issues should be reviewed to ensure they contribute to, rather than impede, knowledge development.

Range of Analyses

It is helpful for an organization to ask the strategic question, to what extent and under what conditions can one type of program substitute for another? These are the kinds of questions

that can be addressed by a KDS. For example, an anonymized analytical database has existed at the University of British Columbia since the mid-1980s. An analysis of the administrative data revealed that there was considerable potential for a cost-effective substitution of home care services for residential care services. Furthermore, at a policy and program level, steps were taken to actually substitute home care for residential care services, resulting in significant cost avoidance for at least 10 years (Hollander and Chappell 2007).

Organizational Issues

There may be turf and data access issues, regarding who has control over what data within a given organization. These matters need to be addressed so that analysts can get regular data extracts to do their work, and analytical resources are recognized as valuable corporate resources.

Getting Started

As noted above, there are several potential approaches to developing a KDS. Organizations must determine which approach or combination of approaches best meets their needs, context and constraints. One of the main challenges in a KDS is to engage the right people. They need to be well trained and have a wide range of experience in analysis and informatics. They also must be familiar with several quantitative and qualitative research approaches. Further, it is important to hire analysts with experience in or knowledge of management, policy formulation, program development and operations.

Example of a KDS

The General Practice Services Committee (GPSC) is the main driver of strategic change in primary care in British Columbia (GPSC 2009). In 2007, Hollander Analytical Services Ltd. was retained to conduct an evaluation of the main GPSC initiatives. There were two primary areas to be evaluated: the Full Service Family Practice Incentive Program, which funds incentive payments to family physicians through existing fee schedules; and the Practice Support Program, which provides training on various topics for family physicians.

In order to perform the evaluation, a KDS was developed and implemented. An extensive process was conducted to obtain access to extracts from ministry databases for hospital services, medical services, pharmacy services, and home care and residential long-term care. Extracts from other databases may also be added in the future. A protocol to ensure the privacy and confidentiality of data was developed and approved by the BC privacy commissioner. Thus, a level three analytical database was developed. The structural model for the KDS was one of hiring an external team of experienced experts in research, evaluation and informatics. The team consists of four experts, working part-time. Back-up resources are also available, as required.

Administrative data were obtained for each of the areas for which incentive payments had been introduced – that is, chronic disease management (diabetes, congestive heart failure and hypertension), complex care, mental health and obstetrics. Reports were produced for each topic area and for other topics such as the uptake of incentives and continuity of care. In addition to these reports, a new and groundbreaking article was published on the relationship between attachment to practice and costs (Hollander et al. 2009). This article demonstrated that for patients with high care needs, an overall increase in the level of attachment to their provider of as little as 5% could potentially result in an annual cost avoidance of some \$85 million. The article used multivariate statistical analysis to ensure that the inverse relationship between attachment and cost was not due to other factors such as the age distribution of the population. This is an example of the type of analysis conducted at level four of the KDS. The findings have had a major impact on policy and program development in primary care in British Columbia.

In level five of the KDS, a number of surveys were conducted. It was found that the training programs of the Practice Support Program appeared to be quite effective (MacCarthy et al. 2009). A survey was conducted of general practitioners (GPs), which stratified respondents into high, medium and low billers of incentives. This allowed for an analysis, across a wide range of topics, in regard to the perceptions of GPs based on their billing practices (Miller et al. 2009b). In addition, patients were randomly selected from each group of GPs in order to obtain their perceptions of care based on the billing practices of their physicians (Miller et al. 2009a). It was not possible to develop physician-patient dyads due to privacy issues; thus, data were analyzed on a group basis. Nevertheless, these examples show how one can integrate administrative data with survey data to obtain a more complete and nuanced picture of a given topic area.

The overall program of research for GPSC was documented at the beginning of the evaluation in the project work plan. The key results from all the reports produced for the project (up to June 2009) were integrated into a synthesis report that addressed the key research questions in the work plan (Hollander 2009). A knowledge transfer and dissemination framework was also developed for the project.

Could Your Organization Benefit from a KDS?

The following questions are a *diagnostic tool* for senior executives to determine whether or not their organization could benefit from a KDS:

- Do your analysts (in house or external) have access to patient- and provider-specific data as approved by the appropriate privacy authority, or have access to data that have been rendered anonymous?
- Do your information systems people regularly provide

extracts at the patient and provider levels of detail to your analysts, or allow them to access organizational databases to do their own extracts?

- Does your organization regularly conduct cost and utilization analyses (standardizing for levels of care need) across key care delivery components to determine which services can provide good quality care at the lowest costs (e.g., home care and residential care, or preventive home support and hospital care)?
- Do your analysts use more sophisticated statistical software such as SPSS, the statistical package in SAS, or similar software?
- Do your analysts use advanced statistical techniques (e.g., multivariate analysis) in their work, as required?
- Do you receive at least two in-depth reports per year on key strategic issues?
- Does your organization have clear documentation indicating that strategic knowledge development is a top corporate priority?
- Does your organization regularly conduct special studies, surveys etc. to obtain new knowledge on key outcomes or on major strategic initiatives?

If you answered yes to all these questions, you essentially already have a KDS. If you answered no to all or most of the questions, you may wish to consider whether developing such a system would be appropriate for your organization. **HQ**

References

- General Practice Services Committee. 2009. *General Practice Services Committee Annual Report 2008–2009*. Victoria, BC: Author.
- Hollander, M.J. 1994. *The Costs, and Cost-Effectiveness, of Continuing Care Services in Canada* (Working Paper No. 94-10). Ottawa, ON: Queen's–University of Ottawa Economic Projects.
- Hollander, M.J. 2009. *Evaluation of the Full Service Family Practice Incentive Program and the Practice Support Program. Final Synthesis Report*. Victoria, BC: Hollander Analytical Services Ltd.
- Hollander, M.J., H. Kadlec, R. Hamdi and A. Tessaro. 2009. "Increasing Value for Money in the Canadian Healthcare System: New Findings on the Contribution of Primary Care Services." *Healthcare Quarterly* 12 (4): 30–42.
- Hollander, M.J. and M. Prince. 1993. "Analytical Units in Federal and Provincial Governments: Origins, Functions and Suggestions for Effectiveness." *Canadian Public Administration* 36(2): 190–224.
- Hollander, M.J. and N.L. Chappell. 2007. "A Comparative Analysis of Costs to Government for Home Care and Long Term Residential Care Services, Standardized for Client Care Needs." *Canadian Journal on Aging* 26(Suppl. 1): 149–61.
- MacCarthy, D., L. Kallstrom, R. Gray, J.A. Miller and M.J. Hollander. 2009. "Supporting Family Physicians in British Columbia: The Experience of the Practice Support Program." *BC Medical Journal* 51(9): 394–97.

Miller, J.A., H. Kadlec and M.J. Hollander. 2009a. *Final Report: Patient Surveys Regarding the Incentive Payments*. Victoria, BC: Hollander Analytical Services Ltd.

Miller, J.A., H. Kadlec and M.J. Hollander. 2009b. *Final Report: Physician Surveys Regarding the Incentive Payments*. Victoria, BC: Hollander Analytical Services Ltd.

About the Authors

Marcus J. Hollander, PhD, is the president of Hollander Analytical Services Ltd., a national health services and policy research company, headquartered in Victoria, British Columbia. You can contact him by phone at 250-384-2776; by fax at 250-389-0105 or by e-mail at marcus@hollanderanalytical.com.

Christopher Corbett, PhD, is the president of CSCW Systems Corporation, a national company focused on applying health informatics to support health service decision-making. The company is headquartered in Victoria, British Columbia. He can be reached at 250-382-2545, by fax at 604-648-9141 or by e-mail at corbett@cscw.ca.

Paul Pallan, who holds a diploma in hospital administration and a certificate in public administration, is the vice-president of strategic consulting services at Hollander Analytical Services Ltd. He has been an assistant deputy minister in British Columbia's Ministries of Health and Education, and in cabinet operations, and served as the province's children's commissioner, a deputy minister-level position. You can contact him at 250-384-2776, by fax at 250-389-0105 or by e-mail at paul@hollanderanalytical.com.



MILLIONS OF PATIENTS SEEK THEIR ADVICE THEY SEEK OURS

CGI is in the business of satisfying clients. We work with federal and provincial governments, hospitals and healthcare systems to deliver IT services that improve quality of care and outcomes for patients.

Visit cgi.com/healthcare to learn more and to **experience the commitment™**.

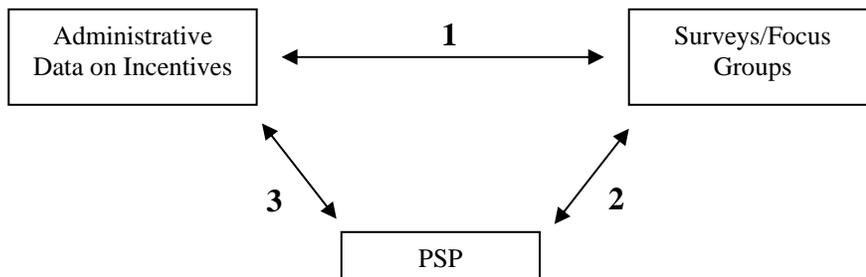


Business solutions through information technology®

THE ADDED VALUE OF USING THE KNOWLEDGE DEVELOPMENT SYSTEM (KDS) APPROACH TO CONDUCTING THE EVALUATION FOR GPSC

Standard evaluation approaches would evaluate each major component of PSP, incentives and surveys/focus groups separately. We do this in our approach to evaluating the FSFPIP and the PSP. The added value of the KDS is the additional new knowledge which can be generated from the interaction of the component parts.

Figure 1: The Interaction of the Main Components of the Evaluation



Interaction 1:

This is an important interaction as it provides a qualitative perspective on the incentives. The sampling approach for the GP surveys is to identify separate GP groups such as nonbillers, maternity, and high/low users of incentives, and GPs with high/low proportions of MSOC patients, i.e., a measure of attachment. This allows us to compare and contrast GP perceptions, and knowledge about the GPSC, and the incentive payments to see if, and how, they may differ among GPs who actively use GPSC incentives and/or have high levels of attachment, and those who do not. For example, in the fiscal 11/12 GP survey, we compare issues such as:

- Level of satisfaction with incentive payments;
- Major perceived strengths and weaknesses of the incentive payments;
- Suggestions of how to improve the system of incentive payments;
- Patient access to care;
- The extent to which incentive payments have encouraged GPs to remain in practice longer than they previously intended;
- The extent to which GPs feel that incentives:
 - recognize the time and effort need to provide care.
 - improve the continuity of care.
 - improve the quality of care; and
- How the availability of incentives has affected the GP's practice.

The patient survey is based on randomly sampling patients from GPs in each of the GP groups noted above. This allows for analyses to determine the extent to which patients perceive a difference in their care across the various groups, i.e., if patients have different perceptions of the quality of their care across high and low GP groups based on their level of attachment and/or the use of incentive payments.

Key questions in the patient surveys are related to:

- Access to medical care from their family doctor;
- Reasons for accessing medical care (e.g., tests, immunizations, referrals to a specialist);
- Coordination of patient care;
- Use of walk in clinics;
- Use of hospital emergency departments;
- Reasons for use of emergency departments;
- Relationships between the patient and his/her family doctor; and
- Development of care/treatment plans.

We are not aware of other evaluations which select GP groups from the administrative data and conduct GP and patient surveys based on these grouping.

Interaction 2:

In the GP surveys we ask about attendance at various PSP modules. Thus, we can do separate analyses on the GP and patient related questions noted above, and others, by the type and number of PSP modules attended. For example:

- What are the relative profiles of GPs who are attendees of multiple PSP modules compared to non-attendees;
- The relationship of a learning module and the use of related incentives. For example, were GPs who attended the Adult Mental health Module more or less likely to bill for mental health incentives, than those who did not; and
- Are high attendees of PSP modules more or less likely to agree that the FSFPIP improves the continuity and/or quality of care?

Interaction 3:

The main interactive benefit between the PSP and incentive payments is still under development but is well under way. We shall eventually include data on which Learning Modules were completed by which GPs and when on the main Practitioner Profiles database at the Ministry of Health. We already have access to this database for our evaluation but a separate privacy impact analysis needs to be conducted. Once these data are available we shall be able to analyze if, and how, billing patterns change before and after the completion of a Learning Module. We already hypothesize that attendance at the Adult Mental Health Learning Module may have had the effect of making mental health care more cost-effective. This is based on a separate analysis of the cost-effectiveness of mental health incentives between fiscal 09/10 and 10/11. There was a significant increase in cost-effectiveness in fiscal 10/11, a period where a large number of GPs would already have completed the PSP Adult Mental Health Learning Module.