

The General Practice Services Committee

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

**Final Report: Mental Health Incentives:
Fiscal 2009/10**

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HIGHLIGHTS OF FINDINGS

- In fiscal 09/10 some 54,523 patients received incentive based care for a mental health condition.
- The average, overall, annual costs for these patients was \$4,472; \$2,289 for RUB 3, \$6,336 for RUB 4 and \$14,897 for RUB 5.
- Costs consistently increased with age, from \$3,425 for patients up to 44 years of age compared to \$7,948 for patients 80 years of age or older.
- Average, overall, annual costs were significantly lower for females at \$4,253 compared to males at \$4,877.
- As with other conditions, there was an inverse relationship between costs and attachment.
- Comparative cost analyses were conducted for persons with depression and anxiety (codes 311 and 50B). There were 97,727 patients who had not received incentive based care compared to 40,822 who had.

	Incentive Based Care - No	Incentive Based Care - Yes
Raw costs for RUBs 3 to 5	\$4,583	\$4,215
Costs Adjusted for Age, Sex and RUB	\$4,617	\$4,163
Cost Adjusted for Age, Sex, RUB and Attachment Level (08/09)	\$4,407	\$4,397
Cost Adjusted for Age, Sex, RUB and Attachment Level (09/10)	\$4,527	\$4,271

- While in fiscal 08/09 the adjusted costs were comparable for patients who did, and did not, receive incentive based care, the costs for people who received incentive based care were much lower for fiscal 09/10. It is hypothesized that this could be a result of the PSP Adult Mental Health Learning Module which received considerable uptake in fiscal 09/10.
- The overall costs of all mental health incentives for fiscal 09/10 was \$5,885,923. The cost avoidance attributable to patients with depression and anxiety who received incentive based care was \$16,102,348, resulting in a net cost avoidance of \$10,216,426 for fiscal 09/10.

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1. INTRODUCTION

The mental health incentive was introduced in January 2008. This report presents data for fiscal 2009/10. First, basic descriptive data on patients for whom a mental health incentive was billed is presented. This is similar in nature to analyses presented for 2008/09. The next section provides a cost analysis between groups of people who did, and did not, receive incentive based care.

Considerable effort was expended to try to develop appropriate comparison groups of patients who did not receive incentive based care. Some initial formulations which seemed promising were developed that turned out not to be workable once we started to analyze the data. One factor was because while there is a wide range of Axis 1 diagnoses, there was actually a very limited set of diagnoses for patients who received incentive based care. Another factor was that there is considerable variability in the types of conditions for which one can receive incentive based care (e.g., dementia and schizophrenia). This is not a problem from a policy and funding perspective but presents extreme challenges if one is trying to develop an appropriate comparison group of people with similar conditions.

Given the above, we considered, but rejected as not being feasible, the development of an overall comparison group. We then looked at what might be feasible based on the data we had. We initially thought we might be able to develop comparison groups for depression and schizophrenia. However, many people with schizophrenia were also diagnosed as having depression. Thus, once these people were removed there were no longer enough people for an adequately robust analysis. We did, however, develop a comparison group for people with depression. Our resulting depression dataset covers the majority of people who had incentive based care and has a significant number of people who did not receive incentive based care but were similar to those who did.

While there is a depression registry, most analysts have concerns that it may overstate the number of people with depression as people are seldom taken off the registry. For example, someone with a relatively short depressive episode would, most probably, be put on the registry and be maintained on the registry even after they have recovered. There is no general mental health registry. Thus, it is not possible to do the same type of comparisons between people who did, and did not, receive incentive based care as was done for CDM or complex care. Besides the depression registry, other selection criteria were developed in order to determine appropriate groups.

2. DESCRIPTIVE DATA ON PATIENTS WITH INCENTIVES

This section presents data on patients who received incentive based care and is similar, in the types of analyses conducted, to the fiscal 08/09 report.

We used the same standard screens for this analysis that we used for our other analyses. That is, we excluded:

- People with less than five GP services in the year.
- People with 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 who were in a long term care facility at the end of the 2007/08 fiscal year.

Table 1 presents the number of patients who passed all of our screens, received incentive based care, and are included in our analysis. The data are presented by gender, age, attachment level and RUB. Table 2 presents the cost breakdown for MSP costs (GPs, specialists and diagnostic services), drugs, and hospitals. Table 3 presents the breakdown for total costs. There are slightly different cost patterns by gender within RUB. RUB 3 costs were lower for females and higher for males. However, the reverse was true for RUBs 4 and 5. While there was a steady increase in costs, overall, with increasing age, the picture varied across the three RUB categories. However, the inverse relationship between attachment and costs was consistent across RUB levels.

Tables 4 to 6 present the same data for people who received incentive based care for mental health but did not receive incentive based care for other incentives. As can be seen, there were some 14,000 fewer people in this analysis. The average annual cost for all patients in each group indicates that the average cost for those who only received mental health incentives was some \$700 lower than for those who received incentive based care for mental health and for other conditions.

Table 1: Number of Patients Included in Analysis Who Received Incentive Based Care: Fiscal 2009/10

Averages	Number of Patients			
	All	Resource Utilization Band		
		3	4	5
All	54,523	36,937	11,998	5,588
Client Age Group				
0 - 44	20,912	15,886	4,236	790
45 - 59	17,901	12,930	3,372	1,599
60 - 69	7,302	4,657	1,695	950
70 - 79	4,404	2,082	1,338	984
80 and over	4,004	1,382	1,357	1,265
Gender				
Females	35,431	24,435	7,848	3,148
Males	19,092	12,502	4,150	2,440
Attachment to Practice				
1. Less than 40%	2,493	1,275	794	424
2. 40% - 59%	9,095	5,554	2,330	1,211
3. 60% - 79%	12,933	8,365	3,039	1,529
4. 80% - 89%	9,958	6,997	1,997	964
5. 90% or More	20,044	14,746	3,838	1,460

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

Table 2: Average Annual Costs by Type of Cost for Patients with a Mental Health Incentive: Fiscal 2009/10

Averages	MSP Costs				Pharmacare Costs				Hospital Costs			
	All	Resource Utilization Band			All	Resource Utilization Band			All	Resource Utilization Band		
		3	4	5		3	4	5		3	4	5
All	1,647	1,130	2,283	3,696	908	585	1,329	2,133	1,917	574	2,723	9,067
Client Age Group												
0 - 44	1,374	1,017	2,266	3,775	628	443	1,000	2,356	1,423	631	3,154	8,063
45 - 59	1,594	1,148	2,297	3,721	992	624	1,619	2,650	1,493	492	2,270	7,942
60 - 69	1,888	1,271	2,412	3,979	1,095	714	1,528	2,189	2,279	525	2,747	10,043
70 - 79	2,226	1,397	2,340	3,824	1,283	919	1,440	1,837	3,058	644	2,344	9,134
80 and over	2,225	1,378	2,083	3,305	1,239	932	1,282	1,529	4,483	738	2,847	10,329
Gender												
Females	1,644	1,142	2,379	3,705	845	530	1,261	2,247	1,765	516	2,744	9,014
Males	1,652	1,106	2,102	3,685	1,024	693	1,458	1,986	2,201	687	2,684	9,135
Attachment to Practice												
1. Less than 40%	2,412	1,288	2,809	5,049	1,018	558	1,052	2,335	5,144	1,415	5,390	15,895
2. 40% - 59%	1,931	1,199	2,493	4,209	874	498	1,123	2,123	3,244	951	3,842	12,612
3. 60% - 79%	1,761	1,163	2,346	3,869	947	539	1,401	2,278	2,464	743	3,186	10,444
4. 80% - 89%	1,558	1,095	2,251	3,484	843	522	1,318	2,186	1,555	500	2,470	7,323
5. 90% or More	1,393	1,088	2,014	2,838	916	677	1,462	1,897	741	298	1,258	3,852

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

Table 3: Average Annual Costs for Patients with a Mental Health Incentive: Fiscal 2009/10

Averages	Total Costs			
	All	Resource Utilization Band		
		3	4	5
All	4,472	2,289	6,336	14,897
Client Age Group				
0 - 44	3,425	2,091	6,420	14,194
45 - 59	4,079	2,264	6,186	14,314
60 - 69	5,262	2,510	6,687	16,212
70 - 79	6,566	2,961	6,125	14,795
80 and over	7,948	3,047	6,212	15,163
Gender				
Females	4,253	2,189	6,384	14,967
Males	4,877	2,485	6,244	14,806
Attachment to Practice				
1. Less than 40%	8,573	3,261	9,251	23,279
2. 40% - 59%	6,050	2,648	7,458	18,944
3. 60% - 79%	5,172	2,445	6,933	16,592
4. 80% - 89%	3,956	2,116	6,040	12,992
5. 90% or More	3,050	2,063	4,733	8,587

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

Table 4: Number of Patients Included in the Analysis who Received Mental Health Incentive Based Care Only: Fiscal 2009/10

Averages	Number of Patients			
	All	Resource Utilization Band		
		3	4	5
All	40,360	29,744	8,004	2,612
Client Age Group				
0 - 44	19,819	15,186	3,950	683
45 - 59	13,578	10,224	2,351	1,003
60 - 69	3,945	2,764	795	386
70 - 79	1,754	1,002	488	264
80 and over	1,264	568	420	276
Gender				
Females	26,861	19,895	5,470	1,496
Males	13,499	9,849	2,534	1,116
Attachment to Practice				
1. Less than 40%	2,186	1,187	701	298
2. 40% - 59%	7,500	4,967	1,825	708
3. 60% - 79%	10,126	7,177	2,217	732
4. 80% - 89%	7,346	5,701	1,278	367
5. 90% or More	13,202	10,712	1,983	507

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

Table 5: Average Annual Costs by Type of Cost for Patients with a Mental Health Incentive Only: Fiscal 2009/10

Averages	MSP Costs				Pharmacare Costs				Hospital Costs			
	All	Resource Utilization Band			All	Resource Utilization Band			All	Resource Utilization Band		
		3	4	5		3	4	5		3	4	5
All	1,463	1,071	2,221	3,611	725	500	1,129	2,047	1,589	596	2,861	9,009
Client Age Group												
0 - 44	1,345	1,007	2,236	3,721	575	420	905	2,120	1,385	633	3,126	8,020
45 - 59	1,488	1,110	2,254	3,542	854	564	1,456	2,403	1,379	523	2,408	7,696
60 - 69	1,665	1,186	2,256	3,870	866	579	1,326	1,966	2,036	582	2,856	10,757
70 - 79	1,878	1,229	2,201	3,745	960	702	1,128	1,632	2,636	710	2,492	10,211
80 and over	1,841	1,215	1,864	3,095	917	755	1,028	1,081	4,208	751	3,346	12,633
Gender												
Females	1,487	1,085	2,341	3,708	645	435	1,023	2,068	1,447	517	2,837	8,720
Males	1,416	1,041	1,962	3,480	884	633	1,357	2,019	1,874	753	2,915	9,396
Attachment to Practice												
1. Less than 40%	2,201	1,248	2,705	4,813	940	514	990	2,516	4,329	1,445	4,977	14,293
2. 40% - 59%	1,718	1,161	2,391	3,887	727	447	989	2,015	2,506	946	3,639	10,528
3. 60% - 79%	1,547	1,117	2,245	3,650	744	477	1,200	1,981	1,895	731	3,062	9,774
4. 80% - 89%	1,340	1,030	2,161	3,301	636	428	1,127	2,146	1,201	494	2,476	7,748
5. 90% or More	1,200	999	1,907	2,685	723	577	1,227	1,841	597	302	1,422	3,590

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

Table 6: Average Annual Costs for Patients with a Mental Health Incentive Only: Fiscal 2009/10

Averages	Total Costs			
	All	Resource Utilization Band		
		3	4	5
All	3,778	2,166	6,211	14,666
Client Age Group				
0 - 44	3,305	2,060	6,267	13,861
45 - 59	3,722	2,198	6,118	13,641
60 - 69	4,566	2,348	6,438	16,594
70 - 79	5,474	2,641	5,820	15,588
80 and over	6,966	2,721	6,238	16,808
Gender				
Females	3,579	2,037	6,201	14,495
Males	4,173	2,428	6,234	14,896
Attachment to Practice				
1. Less than 40%	7,470	3,208	8,672	21,622
2. 40% - 59%	4,951	2,554	7,019	16,429
3. 60% - 79%	4,187	2,326	6,507	15,405
4. 80% - 89%	3,177	1,952	5,765	13,195
5. 90% or More	2,520	1,878	4,556	8,115

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

3. COST COMPARISONS FOR DEPRESSION

3.1 Selection Methodology

3.1.1 Determining Who is, and is Not, in the Analysis

Initially a review was performed for all patients with a mental health incentive in 2008/09 to determine the services they received using the relevant diagnostic codes. The intent was to ensure that a comparison group would include patients with similar diagnoses. From this review certain diagnostic codes were eliminated because they could be used for patients without a mental health condition. There were relatively few services provided with these codes. The diagnostic codes eliminated were:

- 625 Pain and other symptoms associated with female genital organs
- 347 Cataplexy and narcolepsy
- 780.5 Sleep disturbances
- 331 Other cerebral degenerations except for:
 - 331.0 Alzheimer's disease and 331.2 Senile degeneration of brain

Only 23 diagnostic groups were found for patients with a mental health incentive. Depressive Disorder (311) was by far the diagnostic code with the highest number of services. In order to avoid mixing together patients with obvious differences in care requirements, the original intent was to do an analysis of two different groups. The first group, those with a diagnosis of 311 Depressive Disorder or 50B Anxiety/Depression contained the majority of patients. In addition, patients with those diagnostic codes are included on the depression registry and this would add support to the selection of a comparison group. Note that those with 296 Affective Psychoses, another group included on the depression registry, were not included because they had significantly higher average services. The second group selected for analysis was to be the 'Schizophrenia and Psychotic Disorders' as outlined in the 'GP Services Committee Initiatives Update Jan.1, 2010'. However once the 42,003 unique patients with a diagnostic code of 311 or 50B were excluded, there were too few patients remaining for further analysis. It should be noted that patients with a diagnosis of 311 and/or 50B accounted for over 80% of all patients with mental health diagnostic codes for patients with incentives.

Similar results were found for fiscal 2009/10. Table 7 presents diagnostic codes by services and Table 8 presents diagnostic codes by patients (patients are counted more than one if they have more than one diagnostic code) and services for GPs and Specialists. Table 9 presents data for Specialists only. Table 10 presents a summary of the percentage of patients with a diagnosis of depression. In tables 7 to 9, the diagnostic codes are the first three digits of the diagnostic code but include all codes with those digits thus diagnostic code 300 includes 300 and all other codes which start with 300.

Table 7: Most Frequent Diagnostic Codes For Mental Health Incentive Based Care Including Specialists: Fiscal 2009/10

Diagnostic Code	Description	Services	
		Total	%
311	DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED	175,391	36.4
300	NEUROTIC DISORDERS	66,127	13.7
50B	ANXIETY/DEPRESSION	58,234	12.1
296	AFFECTIVE PSYCHOSES	45,256	9.4
304	DRUG DEPENDENCE	40,819	8.5
295	SCHIZOPHRENIC PSYCHOSES	24,515	5.1
309	ADJUSTMENT REACTION	11,127	2.3
308	ACUTE REACTION TO STRESS	10,273	2.1
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	10,088	2.1
303	ALCOHOL DEPENDENCE SYNDROME	8,576	1.8
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	7,704	1.6
301	PERSONALITY DISORDERS	4,789	1.0
298	OTHER NONORGANIC PSYCHOSES	4,171	0.9
305	NONDEPENDENT ABUSE OF DRUGS	2,984	0.6
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	2,715	0.6
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	1,975	0.4
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	1,972	0.4
297	PARANOID STATES	1,312	0.3
331	OTHER CEREBRAL DEGENERATIONS	1,040	0.2
292	DRUG PSYCHOSES	883	0.2
302	SEXUAL DEVIATIONS AND DISORDERS	721	0.1
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	347	0.1
315	SPECIFIC DELAYS IN DEVELOPMENT	298	0.1
All		481,317	100.0

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

Table 8: Patient Counts for Selected Diagnostic Codes For Patients with Mental Health Incentives Including Specialists (Non-Exclusive): Fiscal 2009/10

Diagnostic Code	Description	Patients	Services	Average Services
311	DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED	42315	175391	4.1449
50B	ANXIETY/DEPRESSION	19650	58234	2.9636
300	NEUROTIC DISORDERS	18892	66127	3.5003
296	AFFECTIVE PSYCHOSES	8362	45256	5.4121
308	ACUTE REACTION TO STRESS	5204	10273	1.9741
309	ADJUSTMENT REACTION	4691	11127	2.3720
304	DRUG DEPENDENCE	3419	40819	11.9389
295	SCHIZOPHRENIC PSYCHOSES	2978	24515	8.2320
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	2750	10088	3.6684
303	ALCOHOL DEPENDENCE SYNDROME	2352	8576	3.6463
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	2211	7704	3.4844
301	PERSONALITY DISORDERS	1289	4789	3.7153
305	NONDEPENDENT ABUSE OF DRUGS	1188	2984	2.5118
298	OTHER NONORGANIC PSYCHOSES	1118	4171	3.7308
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	972	2715	2.7932
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	834	1972	2.3645
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	515	1975	3.8350
331	OTHER CEREBRAL DEGENERATIONS	449	1040	2.3163
297	PARANOID STATES	442	1312	2.9683
302	SEXUAL DEVIATIONS AND DISORDERS	410	721	1.7585
292	DRUG PSYCHOSES	320	883	2.7594
315	SPECIFIC DELAYS IN DEVELOPMENT	192	298	1.5521
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	100	347	3.4700
30H		11	11	1.0000
30A		3	3	1.0000
29B		1	2	2.0000

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

Table 9: Patient Counts for Selected Diagnostic Codes for Patients with Mental Health Incentives Using Services by Specialists Only: Fiscal 2009/10

Diagnostic Code	Description	Patients	Services
296	AFFECTIVE PSYCHOSES	4371	28889
311	DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED	4211	25777
300	NEUROTIC DISORDERS	3706	22424
295	SCHIZOPHRENIC PSYCHOSES	1473	14254
50B	ANXIETY/DEPRESSION	846	4065
309	ADJUSTMENT REACTION	834	3250
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	668	2045
301	PERSONALITY DISORDERS	607	3394
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	536	3828
304	DRUG DEPENDENCE	486	5265
298	OTHER NONORGANIC PSYCHOSES	453	2112
303	ALCOHOL DEPENDENCE SYNDROME	365	1162
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	316	1419
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	203	516
305	NONDEPENDENT ABUSE OF DRUGS	190	449
297	PARANOID STATES	134	634
308	ACUTE REACTION TO STRESS	129	288
292	DRUG PSYCHOSES	123	424
331	OTHER CEREBRAL DEGENERATIONS	114	220
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	106	306
302	SEXUAL DEVIATIONS AND DISORDERS	88	171
315	SPECIFIC DELAYS IN DEVELOPMENT	59	96
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	17	76
30H		4	4
30A		2	2

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

Table 10: Unique Patients with Mental Health Incentives for Combinations of Related Diagnostic Codes: Fiscal 2009/10

	Patients	% of Patients
Has 311 or 50B	50,740	81.4
No 311 or 50B	11,600	18.6
All	62,340	100.0

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

3.1.2 Comparison Groups for Anxiety/Depression 311 and 50B

One problem in attempting an analysis for this group was to find a way to exclude patients who may be occasional users of antidepressants or tranquillizers. After reviewing the documentation for the mental health initiative provided in ‘GP Services Committee Initiatives Update Jan.1, 2010’, it was clear that any patient for whom a plan was developed had a significant amount of care (initial visit, plan creation, 30 minutes face-to-face). Thus, it was not necessary to use drugs as an inclusion/exclusion criteria. Because GP’s can claim for counselling services, this was included as an indicator of a similar type of patient who did not have incentive based care. It was also felt that in some areas, patients with the selected diagnosis may be treated by a specialist rather than a general practitioner. With this in mind, patients with a service from a specialist with a diagnosis of 311 or 50B were also included.

The general selection criteria for the analysis included the following:

- A diagnosis of 311 or 50B AND
- On the depression registry for 2009/10 AND
- At least one of the following:
 - i. A mental health incentive (14043,14044,14045,14046,14047,14048,14049)
 - OR
 - ii. At least one counselling service from a GP OR
 - iii. A specialist service for 311 or 50B.
- At least one GP service
- A minimum of 5 services where services include the total of all GP services plus Specialist services for 311 or 50B
- RUBs 3 to 5
- Exclusion criteria:
 - People who died in the year.
 - People with hospital costs greater than \$100,000.
 - People with billings for more than 25 payees.
 - People who were in a long term care facility at the end of the 2008/09 fiscal year.

The above criteria were used in selecting patients for the analysis in fiscal 2009/10.

3.2 Cost Comparisons

Tables 11 and 12 present data on the unadjusted costs for patients who did, and did not, receive incentive based care (for patients with a diagnosis of 311 and/or 50B, alone or in combination). Table 11 presents patient counts for a number of key dimensions such as gender, age, RUB and attachment level. Data for age groups and attachment groups have been re-grouped due to the nature of their distributions. This re-grouping ensures that there are an adequate number of cases per cell for the adjustment process (i.e., 2 gender groups x 4 age groups x 3 RUB levels x 3 attachment levels = 72 cells). It is important to note, that in fiscal 08/09 RUB 3 and 4 patients who received incentive based care were more costly. However, costs were lower for RUB 5 patients who received incentive based care. For fiscal 09/10 the unadjusted cost comparison shows that costs were lower for patients who received incentive based care for all three RUB levels.

Table 13 presents average costs by gender, age and RUB for people with depression who did, and did not, receive incentive based care. Table 14 presents age and sex adjusted costs by RUB. Table 15 provides the comparative costs for people who did, and did not, receive incentive based care adjusted for differences in gender, age and RUB level. As can be seen, patients who received incentive based care cost less, but also had a higher attachment level. Table 16 presents data adjusted for gender, age, RUB and attachment level. The data indicate that, for fiscal 08/09, the mental health incentives are revenue neutral, that is, incentive based care, including the costs of the incentives, costs essentially the same as non-incentive based care, once one adjusts for key variables which can have an impact on costs such as gender, age, RUB and attachment level. However, the adjusted costs for patients who received incentive based care were clearly less in fiscal 09/10. While further research is required, it could well be that attending the Adult Mental Health Learning Module may have helped GPs to provide more cost-effective care. There was a very high uptake of physicians taking this module in 09/10.

Finally, Table 17 presents the net cost avoidance of incentive based care. As can be seen, the net cost avoidance of the incentives was \$10.2 million.

Table 11: Unadjusted Costs for 311 and/or 50B for Patients Who Did, and Did Not, Receive Incentive Based Care: Fiscal 2009/10

	Mental Health Incentive							
	No				Yes			
	Number of Patients				Number of Patients			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
All	97,727	68,308	21,607	7,812	40,822	28,556	8,614	3,652
Age Group								
00-29	15,616	11,462	3,858	296	5,719	4,359	1,247	113
30-44	26,386	19,334	5,896	1,156	10,453	7,879	2,059	515
45-59	31,843	23,685	5,748	2,410	14,417	10,500	2,666	1,251
60 and Over	23,882	13,827	6,105	3,950	10,233	5,818	2,642	1,773
Gender								
Females	67,942	48,006	15,485	4,451	27,810	19,660	5,940	2,210
Males	29,785	20,302	6,122	3,361	13,012	8,896	2,674	1,442
Attachment to Practice								
1. 00% - 59%	29,225	18,076	8,165	2,984	8,812	5,277	2,414	1,121
2. 60% - 79%	24,621	16,730	5,696	2,195	9,869	6,606	2,265	998
3. 80% or More	43,881	33,502	7,746	2,633	22,141	16,673	3,935	1,533

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

Table 12: Cost Comparisons for Unadjusted Costs for 311 and/or 50B for Patients Who Did, and Did Not, Receive Incentive Based Care: Fiscal 2009/10

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
All	4,583	2,306	6,634	18,813	4,215	2,242	6,376	14,540
Age Group								
00-29	3,756	2,273	6,774	21,855	3,284	2,026	6,358	17,891
30-44	3,610	2,060	6,096	16,859	3,472	2,066	6,449	13,082
45-59	4,046	2,199	6,181	17,101	3,924	2,198	6,037	13,904
60 and Over	6,913	2,861	7,491	20,202	5,902	2,721	6,669	15,198
Gender								
Females	4,133	2,142	6,292	18,086	4,015	2,155	6,337	14,317
Males	5,609	2,694	7,499	19,777	4,642	2,434	6,463	14,881
Attachment to Practice								
1. 00% - 59%	6,107	2,735	7,644	22,332	6,107	2,701	7,799	18,496
2. 60% - 79%	4,834	2,341	6,558	19,368	4,776	2,408	6,636	16,228
3. 80% or More	3,426	2,058	5,626	14,363	3,211	2,031	5,354	10,546

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

Table 13: Average Annual Costs by RUB, Gender, and Age Group for 311 and/or 50B Patients for Who Did, and Did Not, Receive Incentive Based Care: Fiscal 2009/10

		Total Cost					
		Resource Utilization Band					
		3		4		5	
		MH Incentive		MH Incentive		MH Incentive	
		No	Yes	No	Yes	No	Yes
Gender	Age Group						
Females	00-29	1,968	1,771	6,051	5,865	20,310	17,313
	30-44	1,848	1,952	5,829	6,598	16,412	12,446
	45-59	2,092	2,145	5,856	6,179	16,351	13,826
	60 and Over	2,794	2,729	7,433	6,528	19,403	15,010
Males	00-29	2,945	2,570	9,525	7,916	24,321	19,128
	30-44	2,590	2,325	7,036	6,040	17,438	14,326
	45-59	2,454	2,313	6,843	5,766	18,034	14,006
	60 and Over	3,015	2,703	7,600	6,939	21,294	15,495

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

Table 14: Average Annual Costs by RUB for 311 and/or 50B Patients Adjusted for Age and Sex: Fiscal 2009/10

	Resource Utilization Band					
	3		4		5	
	MH Incentive		MH Incentive		MH Incentive	
	No	Yes	No	Yes	No	Yes
GP Amount	426	576	833	1,012	1,314	1,505
Specialist Amount	474	354	1,095	943	2,321	1,727
Diag Fac Amount	248	240	527	484	863	775
GP Specialist and Diag Fac Amounts	1,148	1,171	2,455	2,439	4,498	4,007
Hospital Costs	686	513	3,145	2,632	12,124	8,332
Pharmacy Costs	475	552	1,048	1,309	2,142	2,261
Total Cost	2,309	2,236	6,648	6,381	18,764	14,600
Attachment to Practice	75	79	68	73	67	71

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

Table 15: Average Annual Costs for 311 and/or 50B Patients Adjusted for Age, Sex and RUB Level: Fiscal 2009/10

	MH Incentive	
	No	Yes
GP Amount	588	748
Specialist Amount	762	596
Diag Fac Amount	360	337
GP Specialist and Diag Fac Amounts	1,710	1,682
Hospital Costs	2,168	1,622
Pharmacy Costs	738	859
Total Cost	4,617	4,163
Attachment to Practice	73	77

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

Table 16: Average Annual Costs for 311 and/or 50B Patients Adjusted for RUB, Attachment, Gender and Age Group: Fiscal 2008/09 and Fiscal 2009/10

	Fiscal 08/09		Fiscal 09/10	
	No	Yes	No	Yes
GP Amount	561	732	585	758
Specialist Amount	716	625	758	608
Diag Fac Amount	351	340	360	339
GP Specialist and Diag Fac Amounts	1,628	1,697	1,703	1,704
Hospital Costs	2,065	1,799	2,130	1,710
Pharmacy Costs	714	901	740	857
Average Total Cost	4,407	4,397	4,572	4,271

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

Table 17: Summary of Depression Incentive Costs: Fiscal 2009/10

		Totals
All Mental Health Incentive Costs	Number of Patients	62,241
	Plan Costs	5,723,000
	Telephone Costs	17,775
	Management Fees	145,148
	Total Incentives Cost	5,885,923
Incentive Amount for Other Mental Health Excluded Patients		1,539,481
Incentive Amount for Depression, Excluded Patients		532,693
Incentive Amount for Depression, Included Patients		3,813,749
Incentive Amount for All Mental Health Patients		5,885,923
Total Cost Per Person With Incentives		4,271
Total Cost Per Person With Incentives Excluding Incentive Amount		4,178
Total Cost Per Person Without Incentives		4,572
Savings/Cost Per Person With Incentives Excluding Incentive Amount		394
Total Dollar Savings/Cost Using Standardized Rates Excluding Incentives		16,102,348
Cost of Incentives		-5,885,923
Total Dollar Savings/Cost		10,216,426

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

3.3 Additional Analyses

The GPSC had an interest in seeing data for two other diagnostic codes 300 Neurotic Disorders and 296 Affective Psychoses. It should be noted that in the following analysis diagnoses 300 and 296 refer to all diagnostic codes which include 300 or 296, not just codes 300 and 296 by themselves. In addition, many of the codes in the 296 set refer to Bi-Polar conditions. Thus, we shall use the designation 296 Affective Psychoses (Bi-Polar) in the following text, as appropriate.

For code 300, there is also a sub-code for anxiety within this broader neurotic disorders family of conditions (300.02 Generalized Anxiety Disorder). However, there are very few patients in this designation (some 2% of the total of all codes in the 300 series). While here had been some discussion at GPSC of including anxiety in the 300 label series this does not seem warranted due to the small percentage of people with the 300.02 diagnosis.

Finally, the 296 and 300 codes *per se*, accounted for some 90% or more of all codes in those, respective series.

There was a lot of overlap in diagnostic codes. Thus, patients with diagnoses of 300 and/or 296 and 311 and/or 50B would have been included in the previous analysis. In order to have a picture of more pure types, Tables 18 to 20 present data for patients who only had a particular diagnosis. The numbers of patients who only had a particular diagnosis were considerably smaller. Thus, it was not possible to standardize for age, sex, RUB and attachment level. Thus, the data presented below correspond to the data presented in Table 12. As can be seen from the data, patients with a diagnosis of 311 and/or 50B only who received incentive based care cost less at all RUB levels. In contrast, for patients with a diagnosis of 300 or 296 only, the costs were generally higher for those who received incentive based care. For Neurotic Disorders only (diagnosis 300), costs were only less for RUB 5. For Affective Psychoses (Bi-Polar) only (diagnosis 296), costs were higher across all three RUBs.

Finally, Table 21 presents data on the most commonly prescribed drugs for mental health patients.

Table 18: Costs by RUB for Depression Patients April 2009 to March 2010 for Patients with 311/50B Only

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
All	3,050	1,729	5,551	16,442	2,754	1,707	5,355	13,080
Age Group								
00-29	1,596	1,133	4,007	23,914	1,373	1,123	3,600	5,545
30-44	1,886	1,332	4,260	15,889	1,817	1,300	4,748	10,628
45-59	2,740	1,712	5,170	16,113	2,430	1,683	5,009	11,830
60 and Over	5,037	2,537	6,735	16,487	4,486	2,481	6,173	13,982
Gender								
Females	2,814	1,671	5,204	16,079	2,651	1,698	5,302	12,305
Males	3,624	1,875	6,340	16,991	3,001	1,728	5,476	14,493
Attachment to Practice								
1. 00% - 59%	3,620	1,773	6,152	20,058	3,615	1,784	6,331	17,164
2. 60% - 79%	3,328	1,742	5,785	17,296	3,090	1,782	5,831	15,251
3. 80% or More	2,649	1,703	5,027	13,554	2,393	1,661	4,760	10,211

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

Table 19: Costs by RUB for Patients with Neurotic Disorders Only April 2009 to March 2010

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
All	2,865	1,665	4,595	13,964	2,862	1,814	4,760	10,555
Age Group								
00-44	1,836	1,238	4,077	14,189	1,974	1,469	4,289	7,606
45-59	2,343	1,619	4,399	8,250	2,526	1,913	4,578	7,544
60 and Over	4,516	2,343	5,059	15,773	4,137	2,163	5,161	11,710
Gender								
Females	2,720	1,684	4,668	12,431	2,855	1,798	4,616	12,128
Males	3,236	1,612	4,414	16,308	2,878	1,850	5,155	8,289
Attachment to Practice								
1. 00% - 59%	3,144	1,597	4,441	20,344	4,233	1,217	5,404	20,753
2. 60% - 79%	3,242	1,774	5,225	13,218	3,088	1,790	5,338	9,112
3. 80% or More	2,587	1,644	4,334	11,674	2,577	1,899	4,369	7,636

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

Table 20: Costs by RUB for Patients with Affective Psychoses (Bi-Polar) Only: April 2009 to March 2010

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
All	3,544	2,214	4,377	9,486	4,966	3,107	5,098	12,328
Age Group								
00-44	2,894	2,108	4,003	8,548	5,373	3,905	6,130	25,948
45-59	3,121	2,153	3,432	7,521	4,370	2,512	5,060	9,952
60 and Over	5,208	2,578	5,782	11,562	5,370	2,988	4,597	12,269
Gender								
Females	3,471	2,174	4,107	10,928	4,695	2,549	5,672	11,231
Males	3,686	2,305	4,791	7,250	5,406	3,984	4,114	14,092
Attachment to Practice								
1. 00% - 59%	4,194	2,467	4,792	11,011	8,071	3,560	6,452	19,863
2. 60% - 79%	3,684	1,623	3,973	11,783	5,579	3,402	5,498	11,717
3. 80% or More	3,155	2,387	4,377	5,572	3,993	2,944	4,607	8,487

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

Table 21: Categories of Drugs Used in 2009/10 for Mental Health Patients with Incentives Excluding Drugs with Less than 5000 Prescriptions

Drug	# of Prescriptions	# of Patients	Cost
AMITRIPTYLINE	10,167	1,417	103,623
AMLODIPINE	7,966	944	196,494
ATENOLOL	6,653	758	90,270
ATORVASTATIN	21,598	2,559	1,064,243
BENZTROPINE	7,358	477	53,468
BUPROPION HCL	14,508	1,548	370,244
CARBAMAZEPINE	5,180	416	82,694
CITALOPRAM HYDROBROMIDE	37,578	4,551	992,212
CLONAZEPAM	35,737	3,126	389,968
CLOPIDOGREL	5,054	513	286,306
CLOZAPINE	8,611	219	674,592
COD 30 / ACET 300-325-375	23,870	4,931	285,782
CONJUGATED ESTROGENS	5,159	866	100,066
CYCLOBENZAPRINE	7,366	1,488	133,580
DIAZEPAM	7,762	724	73,910
DILTIAZEM	5,474	590	146,298
DIVALPROX	18,276	987	324,113
FLUOXETINE	9,078	1,219	414,810
FUROSEMIDE	15,059	1,420	91,273
GABAPENTIN	20,497	2,201	1,032,469
GLUCOSE TESTING STRIP	6,238	1,687	542,510
HYDROCHLOROTHIAZIDE	16,599	2,394	107,502
HYDROMORPHONE	9,154	936	438,556
LAMOTRIGINE	6,537	565	200,852
LEVOTHYROXINE	31,101	3,158	228,359
LITHIUM SALTS	12,725	832	114,740
LORAZEPAM	26,021	4,820	244,889
METFORMIN	18,446	2,028	239,030
METHADONE	78,454	765	865,834
METOPROLOL	11,586	1,151	102,974
MIRTAZAPINE	13,101	1,278	242,060
MORPHINE	12,379	847	474,809

Table 21 (cont'd)

	# of Prescriptions	# of Patients	Cost
NAPROXEN	6,115	1,931	77,866
OLANZAPINE	17,152	900	2,152,948
OXAZEPAM	9,339	1,117	74,012
OXYCODONE / ACET OR ASA	15,627	1,663	937,055
PAROXETINE	13,319	1,566	448,901
POTASSIUM CHLORIDE	5,089	499	37,766
QUETIAPINE FUMARATE	51,157	3,734	1,620,451
RABEPRAZOLE SODIUM	20,811	2,118	570,253
RAMIPRIL	24,222	2,711	486,935
RANITIDINE	8,883	1,275	100,971
RISPERIDONE	25,679	1,890	999,978
ROSUVASTATIN	10,636	1,557	424,965
SALBUTAMOL	7,929	2,795	139,160
SERTRALINE	12,677	1,420	434,338
SIMVASTATIN	8,384	864	264,065
TEMAZEPAM	6,118	659	55,283
TOPIRAMATE	6,240	550	266,804
TRAZODONE	21,658	2,735	314,967
VENLAFAXINE	38,412	3,830	1,430,811
WARFARIN	10,091	891	103,829
ZOPICLONE	21,272	1,568	306,592

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