

# The General Practice Services Committee

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

**Final Report: Mental Health Incentives:  
Fiscal 2008/09**

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## 1. INTRODUCTION

The mental health incentive was introduced in January 2008. This report presents data for fiscal 2008/09. 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 2007/08. 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 07/08 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. For RUBs 3 and 5, costs were lower for females and higher for males. However, the reverse was true for RUB 4. 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 almost 10,000 fewer people in this analysis. The patterns by gender, age and attachment, while varying somewhat, were fairly similar to the larger sample. However, 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 \$600 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 2008/09**

Averages	Number of Patients			
	All	Resource Utilization Band		
		3	4	5
<b>All</b>	38,890	26,291	8,672	3,927
<b>Client Age Group</b>				
<b>0 - 44</b>	14,835	11,065	3,173	597
<b>45 - 59</b>	13,236	9,557	2,568	1,111
<b>60 - 69</b>	5,146	3,285	1,173	688
<b>70 - 79</b>	2,970	1,458	867	645
<b>80 and over</b>	2,703	926	891	886
<b>Gender</b>				
<b>Females</b>	25,410	17,482	5,760	2,168
<b>Males</b>	13,480	8,809	2,912	1,759
<b>Attachment to Practice</b>				
<b>1. Less than 40%</b>	1,585	759	544	282
<b>2. 40% - 59%</b>	6,307	3,774	1,692	841
<b>3. 60% - 79%</b>	8,999	5,772	2,149	1,078
<b>4. 80% - 89%</b>	6,962	4,827	1,490	645
<b>5. 90% or More</b>	15,037	11,159	2,797	1,081

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 2: Average Annual Costs by Type of Cost for Patients with a Mental Health Incentive: Fiscal 2008/09**

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
<b>All</b>	1,657	1,150	2,277	3,676	979	635	1,415	2,316	1,836	581	2,508	8,750
<b>Client Age Group</b>												
<b>0 - 44</b>	1,416	1,051	2,267	3,666	706	500	1,059	2,647	1,395	612	2,828	8,301
<b>45 - 59</b>	1,606	1,174	2,306	3,705	1,072	676	1,724	2,973	1,430	536	2,105	7,561
<b>60 - 69</b>	1,886	1,254	2,340	4,130	1,114	715	1,635	2,129	2,238	538	2,441	10,008
<b>70 - 79</b>	2,216	1,392	2,414	3,814	1,373	951	1,530	2,115	3,172	629	2,825	9,386
<b>80 and over</b>	2,173	1,354	2,010	3,194	1,326	1,037	1,395	1,560	4,005	759	2,310	9,103
<b>Gender</b>												
<b>Females</b>	1,656	1,165	2,369	3,718	900	573	1,367	2,297	1,675	521	2,546	8,667
<b>Males</b>	1,658	1,122	2,094	3,625	1,126	757	1,511	2,339	2,139	701	2,432	8,852
<b>Attachment to Practice</b>												
<b>1. Less than 40%</b>	2,458	1,454	2,791	4,517	1,137	603	1,336	2,188	5,178	1,882	4,615	15,136
<b>2. 40% - 59%</b>	1,911	1,208	2,340	4,205	992	541	1,219	2,556	3,024	950	3,121	12,135
<b>3. 60% - 79%</b>	1,776	1,179	2,349	3,827	956	575	1,262	2,384	2,387	750	2,949	10,029
<b>4. 80% - 89%</b>	1,603	1,147	2,243	3,535	935	575	1,479	2,372	1,602	589	2,389	7,370
<b>5. 90% or More</b>	1,419	1,097	2,100	2,979	990	725	1,634	2,060	764	278	1,452	3,997

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 3: Average Annual Costs for Patients with a Mental Health Incentive: Fiscal 2008/09**

Averages	Total Costs			
	All	Resource Utilization Band		
		3	4	5
<b>All</b>	4,471	2,367	6,200	14,742
<b>Client Age Group</b>				
<b>0 - 44</b>	3,517	2,163	6,153	14,614
<b>45 - 59</b>	4,108	2,386	6,135	14,238
<b>60 - 69</b>	5,237	2,507	6,415	16,267
<b>70 - 79</b>	6,761	2,973	6,769	15,315
<b>80 and over</b>	7,505	3,150	5,714	13,857
<b>Gender</b>				
<b>Females</b>	4,231	2,259	6,282	14,682
<b>Males</b>	4,923	2,580	6,037	14,816
<b>Attachment to Practice</b>				
<b>1. Less than 40%</b>	8,773	3,939	8,742	21,842
<b>2. 40% - 59%</b>	5,927	2,699	6,680	18,897
<b>3. 60% - 79%</b>	5,118	2,504	6,560	16,241
<b>4. 80% - 89%</b>	4,140	2,311	6,111	13,277
<b>5. 90% or More</b>	3,173	2,100	5,185	9,036

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 4: Number of Patients Included in the Analysis who Received Mental Health Incentive Based Care Only: Fiscal 2008/09**

Averages	Number of Patients			
	All	Resource Utilization Band		
		3	4	5
<b>All</b>	29,049	21,191	5,964	1,894
<b>Client Age Group</b>				
<b>0 - 44</b>	14,078	10,574	2,983	521
<b>45 - 59</b>	10,026	7,515	1,803	708
<b>60 - 69</b>	2,849	1,986	580	283
<b>70 - 79</b>	1,188	709	305	174
<b>80 and over</b>	908	407	293	208
<b>Gender</b>				
<b>Females</b>	19,394	14,276	4,078	1,040
<b>Males</b>	9,655	6,915	1,886	854
<b>Attachment to Practice</b>				
<b>1. Less than 40%</b>	1,413	715	494	204
<b>2. 40% - 59%</b>	5,293	3,400	1,393	500
<b>3. 60% - 79%</b>	7,112	4,988	1,590	534
<b>4. 80% - 89%</b>	5,232	3,946	992	294
<b>5. 90% or More</b>	9,999	8,142	1,495	362

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.



**Table 5: Average Annual Costs by Type of Cost for Patients with a Mental Health Incentive Only: Fiscal 2008/09**

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
<b>All</b>	1,481	1,096	2,205	3,507	794	539	1,235	2,260	1,560	598	2,660	8,852
<b>Client Age Group</b>												
<b>0 - 44</b>	1,390	1,041	2,242	3,576	664	473	999	2,638	1,387	622	2,894	8,289
<b>45 - 59</b>	1,484	1,130	2,209	3,401	906	595	1,530	2,619	1,317	551	2,203	7,191
<b>60 - 69</b>	1,665	1,181	2,261	3,841	886	554	1,552	1,852	1,997	558	2,963	10,117
<b>70 - 79</b>	1,866	1,265	2,144	3,828	954	691	1,293	1,434	2,776	743	2,576	11,410
<b>80 and over</b>	1,788	1,200	1,767	2,970	1,070	878	1,145	1,337	3,949	791	2,578	12,060
<b>Gender</b>												
<b>Females</b>	1,501	1,115	2,311	3,627	700	478	1,149	1,985	1,430	526	2,664	8,996
<b>Males</b>	1,441	1,058	1,977	3,360	982	664	1,421	2,594	1,820	747	2,652	8,678
<b>Attachment to Practice</b>												
<b>1. Less than 40%</b>	2,267	1,428	2,723	4,098	1,011	535	1,252	2,096	4,523	1,909	4,633	13,416
<b>2. 40% - 59%</b>	1,713	1,172	2,260	3,868	821	488	1,080	2,366	2,409	933	3,074	10,589
<b>3. 60% - 79%</b>	1,559	1,129	2,245	3,540	783	514	1,124	2,287	1,830	730	2,766	9,312
<b>4. 80% - 89%</b>	1,408	1,093	2,104	3,282	726	481	1,227	2,329	1,314	593	2,374	7,410
<b>5. 90% or More</b>	1,231	1,018	2,009	2,809	792	604	1,498	2,110	628	264	1,699	4,375

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 6: Average Annual Costs for Patients with a Mental Health Incentive Only: Fiscal 2008/09**

Averages	Total Costs			
	All	Resource Utilization Band		
		3	4	5
<b>All</b>	3,835	2,233	6,101	14,619
<b>Client Age Group</b>				
<b>0 - 44</b>	3,441	2,136	6,134	14,504
<b>45 - 59</b>	3,708	2,276	5,942	13,210
<b>60 - 69</b>	4,548	2,292	6,776	15,809
<b>70 - 79</b>	5,597	2,700	6,012	16,672
<b>80 and over</b>	6,807	2,869	5,490	16,367
<b>Gender</b>				
<b>Females</b>	3,631	2,119	6,124	14,608
<b>Males</b>	4,244	2,469	6,050	14,633
<b>Attachment to Practice</b>				
<b>1. Less than 40%</b>	7,801	3,873	8,608	19,611
<b>2. 40% - 59%</b>	4,943	2,593	6,414	16,823
<b>3. 60% - 79%</b>	4,172	2,372	6,135	15,139
<b>4. 80% - 89%</b>	3,448	2,167	5,705	13,020
<b>5. 90% or More</b>	2,651	1,886	5,206	9,295

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

### **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 (See Table 7).

Once the diagnostic codes used were determined, a review was done of the number of patients by diagnostic code. Not surprisingly, a high number of the patients had a diagnosis of 311. There were 53,264 patients with a mental health incentive (prior to applying our selection criteria). From this group, 1,072 were eliminated because they did not have a relevant mental health diagnosis on any claims leaving 52,192 patients. Patient counts by diagnostic code were determined (see Table 8). In Table 8 patients could be counted more than once. They were counted once for each separate diagnostic code they had (this is referred to as “non-exclusive” patients). Thus, the numbers noted in Table 8 exceed the 52,192 patients in the analysis. It became clear that many patients had multiple relevant diagnostic codes and therefore were counted more than once. By examining the average number of services, it also became clear that some patient groups had significantly more services on average than others.

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 (see Tables 9 and 10). It should be noted that patients with a diagnosis of 311 and/or 50B accounted for over 80% of all patients with the 23 mental health diagnostic codes for patients with incentives. Thus, there may still be differences in

the relative distribution of diagnostic codes. Thus, we also present data for patients with a diagnosis of 311 and/or 50B only in section 3.3.

**Table 7: Most Frequent Diagnostic Codes For Mental Health Incentive Based Care Including Specialists: Fiscal 2008/09**

		Services	
		Total	%
Diagnostic Code	Description		
311	DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED	152,891	36.5
300	NEUROTIC DISORDERS	59,981	14.3
50B	ANXIETY/DEPRESSION	45,195	10.8
296	AFFECTIVE PSYCHOSES	43,426	10.4
304	DRUG DEPENDENCE	29,739	7.1
295	SCHIZOPHRENIC PSYCHOSES	22,811	5.5
309	ADJUSTMENT REACTION	11,444	2.7
308	ACUTE REACTION TO STRESS	10,136	2.4
303	ALCOHOL DEPENDENCE SYNDROME	8,197	2.0
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	7,217	1.7
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	5,559	1.3
298	OTHER NONORGANIC PSYCHOSES	4,535	1.1
301	PERSONALITY DISORDERS	4,299	1.0
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	2,562	0.6
305	NONDEPENDENT ABUSE OF DRUGS	2,501	0.6
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	1,966	0.5
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	1,505	0.4
297	PARANOID STATES	1,316	0.3
292	DRUG PSYCHOSES	1,016	0.2
302	SEXUAL DEVIATIONS AND DISORDERS	812	0.2
331	OTHER CEREBRAL DEGENERATIONS	709	0.2
315	SPECIFIC DELAYS IN DEVELOPMENT	305	0.1
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	285	0.1
All		418,407	100.0

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 8: Patient Counts for Selected Diagnostic Codes For Patients with Mental Health Incentives Including Specialists (Non-Exclusive): Fiscal 2008/09**

<b>Diagnostic Code</b>	<b>Description</b>	<b>Patients</b>	<b>Services</b>	<b>Average Services</b>
311	DEPRESSIVE DISORDER, NOT ELSEWHERE CLASSIFIED	36103	152891	4.23486
300	NEUROTIC DISORDERS	16172	59981	3.70894
50B	ANXIETY/DEPRESSION	14942	45195	3.02470
296	AFFECTIVE PSYCHOSES	7747	43426	5.60552
308	ACUTE REACTION TO STRESS	4817	10136	2.10421
309	ADJUSTMENT REACTION	4218	11444	2.71313
304	DRUG DEPENDENCE	3056	29739	9.73135
295	SCHIZOPHRENIC PSYCHOSES	2782	22811	8.19950
303	ALCOHOL DEPENDENCE SYNDROME	2122	8197	3.86287
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	2022	7217	3.56924
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	1702	5559	3.26616
301	PERSONALITY DISORDERS	1264	4299	3.40111
298	OTHER NONORGANIC PSYCHOSES	1148	4535	3.95035
305	NONDEPENDENT ABUSE OF DRUGS	1045	2501	2.39330
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	864	2562	2.96528
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	789	1966	2.49176
297	PARANOID STATES	408	1316	3.22549
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	400	1505	3.76250
302	SEXUAL DEVIATIONS AND DISORDERS	294	812	2.76190
331	OTHER CEREBRAL DEGENERATIONS	263	709	2.69582
292	DRUG PSYCHOSES	260	1016	3.90769
315	SPECIFIC DELAYS IN DEVELOPMENT	174	305	1.75287
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	95	285	3.00000

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 9: Patient Counts for Selected Diagnostic Codes For Patients with Mental Health Incentives Including Specialists (Non-exclusive) Excluding Patients with 311 or 50B: Fiscal 2008/09**

Diagnostic Code	Description	Patients	Services	Average Services
300	NEUROTIC DISORDERS	4551	14252	3.13162
296	AFFECTIVE PSYCHOSES	1989	9638	4.84565
295	SCHIZOPHRENIC PSYCHOSES	1323	10263	7.75737
308	ACUTE REACTION TO STRESS	1283	2438	1.90023
290	SENILE AND PRESENILE ORGANIC PSYCHOTIC CONDITIONS	1073	3372	3.14259
309	ADJUSTMENT REACTION	1048	2478	2.36450
304	DRUG DEPENDENCE	993	8880	8.94260
303	ALCOHOL DEPENDENCE SYNDROME	718	2575	3.58635
307	SPECIAL SYMPTOMS OR SYNDROMES NOT ELSEWHERE CLASSIFIED	491	1458	2.96945
294	OTHER ORGANIC PSYCHOTIC CONDITIONS (CHRONIC)	424	1288	3.03774
298	OTHER NONORGANIC PSYCHOSES	417	1537	3.68585
305	NONDEPENDENT ABUSE OF DRUGS	340	895	2.63235
312	DISTURBANCE OF CONDUCT NOT ELSEWHERE CLASSIFIED	319	758	2.37618
301	PERSONALITY DISORDERS	275	739	2.68727
331	OTHER CEREBRAL DEGENERATIONS	151	330	2.18543
297	PARANOID STATES	131	379	2.89313
293	TRANSIENT ORGANIC PSYCHOTIC CONDITIONS	127	475	3.74016
315	SPECIFIC DELAYS IN DEVELOPMENT	116	207	1.78448
302	SEXUAL DEVIATIONS AND DISORDERS	95	177	1.86316
292	DRUG PSYCHOSES	72	265	3.68056
783	SYMPTOMS CONCERNING NUTRITION, METABOLISM AND DEVELOPMENT	24	108	4.50000

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 10: Unique Patients with Mental Health Incentives for Combinations of Related Diagnostic Codes: Fiscal 2008/09**

	Patients	% of Patients
<b>Has 311 or 50B</b>	42,003	80.5
<b>No 311 or 50B</b>	10,189	19.5
<b>All</b>	52,192	100.0

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

### 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 2008/09 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 2007/08 fiscal year.

### 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). Table 12 presents the cost comparisons for the unadjusted data. Overall, for mental health patients, RUB 3 and 4 patients who received incentive based care were more costly (e.g., \$6,259 compared to \$6,092 for RUB 4 patients, as noted in the first row). However, costs were lower for RUB 5 patients who received incentive based care.

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 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.



**Table 11: Unadjusted Costs for 311 and/or 50B for Patients Who Did, and Did Not, Receive Incentive Based Care: Fiscal 2008/09**

	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	
<b>All</b>	98,956	69,221	22,062	7,673	32,655	22,760	7,038	2,857
<b>Age Group</b>								
<b>00-29</b>	15,747	11,190	4,258	299	4,296	3,229	970	97
<b>30-44</b>	27,114	19,644	6,319	1,151	8,563	6,367	1,754	442
<b>45-59</b>	32,386	24,425	5,597	2,364	11,765	8,614	2,244	907
<b>60 and Over</b>	23,709	13,962	5,888	3,859	8,031	4,550	2,070	1,411
<b>Gender</b>								
<b>Females</b>	69,742	48,996	16,341	4,405	22,456	15,842	4,959	1,655
<b>Males</b>	29,214	20,225	5,721	3,268	10,199	6,918	2,079	1,202
<b>Attachment to Practice</b>								
<b>1. 00% - 59%</b>	28,332	17,296	8,114	2,922	7,009	4,144	1,955	910
<b>2. 60% - 79%</b>	25,014	17,054	5,781	2,179	7,608	5,045	1,770	793
<b>3. 80% or More</b>	45,610	34,871	8,167	2,572	18,038	13,571	3,313	1,154

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 12: Cost Comparisons for Unadjusted Costs for 311 and/or 50B for Patients Who Did, and Did Not, Receive Incentive Based Care: Fiscal 2008/09**

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
<b>All</b>	4,406	2,242	6,361	18,303	4,383	2,363	6,487	15,295
<b>Age Group</b>								
<b>00-29</b>	3,590	2,205	6,183	18,523	3,608	2,213	6,556	20,560
<b>30-44</b>	3,443	1,965	5,694	16,305	3,585	2,125	6,272	13,951
<b>45-59</b>	3,891	2,171	5,970	16,734	4,064	2,381	6,355	14,372
<b>60 and Over</b>	6,752	2,786	7,576	19,844	6,116	2,766	6,779	15,947
<b>Gender</b>								
<b>Females</b>	3,972	2,085	6,060	17,207	4,124	2,276	6,452	14,845
<b>Males</b>	5,442	2,623	7,218	19,781	4,952	2,561	6,569	15,914
<b>Attachment to Practice</b>								
<b>1. 00% - 59%</b>	5,890	2,594	7,204	21,749	6,330	2,884	7,603	19,285
<b>2. 60% - 79%</b>	4,680	2,306	6,401	18,696	4,957	2,501	6,742	16,597
<b>3. 80% or More</b>	3,333	2,036	5,494	14,056	3,384	2,152	5,692	11,253

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**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 2008/09**

		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	1,950	2,034	5,547	6,121	17,589	21,581
	30-44	1,796	2,020	5,504	6,257	14,277	13,989
	45-59	2,032	2,288	5,766	6,414	14,935	13,489
	60 and Over	2,707	2,779	7,547	6,866	19,345	15,434
Males	00-29	2,795	2,591	9,070	8,046	20,224	18,752
	30-44	2,391	2,380	6,497	6,321	18,739	13,896
	45-59	2,517	2,588	6,423	6,234	19,076	15,472
	60 and Over	2,965	2,734	7,631	6,609	20,539	16,677

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 14: Average Annual Costs by RUB for 311 and/or 50B Patients Adjusted for Age and Sex: Fiscal 2008/09**

	Resource Utilization Band					
	3		4		5	
	MH Incentive		MH Incentive		MH Incentive	
	No	Yes	No	Yes	No	Yes
GP Amount	412	565	799	972	1,259	1,456
Specialist Amount	458	383	1,025	954	2,175	1,755
Diag Fac Amount	244	239	518	490	827	789
GP Specialist and Diag Fac Amounts	1,114	1,187	2,342	2,417	4,261	3,999
Hospital Costs	654	579	3,077	2,692	11,854	8,923
Pharmacy Costs	476	590	961	1,363	2,173	2,404
Total Cost	2,244	2,356	6,380	6,471	18,287	15,327
Attachment to Practice	75	80	69	73	67	71

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 15: Average Annual Costs for 311 and/or 50B Patients Adjusted for Age, Sex and RUB Level: Fiscal 2008/09**

	MH Incentive	
	No	Yes
<b>GP Amount</b>	565	726
<b>Specialist Amount</b>	721	619
<b>Diag Fac Amount</b>	352	339
<b>GP Specialist and Diag Fac Amounts</b>	1,638	1,684
<b>Hospital Costs</b>	2,086	1,714
<b>Pharmacy Costs</b>	719	906
<b>Total Cost</b>	4,442	4,304
<b>Attachment to Practice</b>	73	77

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

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

	MH Incentive	
	No	Yes
<b>GP Amount</b>	563	735
<b>Specialist Amount</b>	718	627
<b>Diag Fac Amount</b>	351	340
<b>GP Specialist and Diag Fac Amounts</b>	1,633	1,702
<b>Hospital Costs</b>	2,057	1,793
<b>Pharmacy Costs</b>	720	905
<b>Average Total Cost</b>	4,410	4,399

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

### 3.3 Additional Analyses

The GPSC had an interest in seeing data for two other diagnostic codes 300 Neurotic Disorders and 296 Affective Psychoses. Patients who had diagnoses of 300 and/or 296 but not 311 and/or 50B were excluded from the analysis. Again, 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 17 to 19 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 RUBs 4 and 5. 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 only (diagnosis 296), costs were higher across all three RUBs.

Finally, Table 20 presents data on the most commonly prescribed mental health related drugs.

**Table 17: Costs by RUB for Depression Patients April 2008 to March 2009 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	
<b>All</b>	3,046	1,715	5,486	17,146	2,735	1,745	5,255	13,558
<b>Age Group</b>								
<b>00-29</b>	1,535	1,143	3,435	17,760	1,517	1,079	4,389	17,737
<b>30-44</b>	1,860	1,299	4,052	14,305	1,757	1,388	4,388	8,420
<b>45-59</b>	2,676	1,704	5,014	16,543	2,473	1,767	4,850	12,161
<b>60 and Over</b>	5,223	2,543	7,003	17,780	4,335	2,408	6,041	14,558
<b>Gender</b>								
<b>Females</b>	2,779	1,662	5,262	16,036	2,576	1,750	5,296	11,665
<b>Males</b>	3,704	1,853	6,032	18,638	3,123	1,732	5,157	16,037
<b>Attachment to Practice</b>								
<b>1. 00% - 59%</b>	3,729	1,706	5,773	22,008	3,609	1,860	6,150	18,607
<b>2. 60% - 79%</b>	3,360	1,736	5,773	18,266	2,950	1,781	5,155	14,081
<b>3. 80% or More</b>	2,596	1,710	5,142	12,822	2,432	1,706	4,983	10,946

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 18: Costs by RUB for Patients with Neurotic Disorders Only April 2008 to March 2009**

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
<b>All</b>	2,855	1,511	4,688	15,422	2,904	1,771	5,286	12,247
<b>Age Group</b>								
<b>00-44</b>	1,594	1,062	3,499	12,699	2,001	1,526	3,606	13,316
<b>45-59</b>	2,481	1,522	4,542	13,406	2,581	1,609	6,438	8,738
<b>60 and Over</b>	4,726	2,182	5,774	16,417	4,550	2,477	5,808	13,617
<b>Gender</b>								
<b>Females</b>	2,607	1,494	4,575	14,133	2,745	1,687	5,248	12,219
<b>Males</b>	3,386	1,550	4,934	16,945	3,208	1,937	5,355	12,284
<b>Attachment to Practice</b>								
<b>1. 00% - 59%</b>	3,407	1,413	4,488	22,193	3,282	1,745	5,383	17,884
<b>2. 60% - 79%</b>	3,138	1,560	5,093	14,979	3,462	1,705	6,333	13,533
<b>3. 80% or More</b>	2,486	1,531	4,577	11,398	2,573	1,800	4,647	9,899

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.

**Table 19: Costs by RUB for Patients with Affective Psychoses Only April 2008 to March 2009**

Averages	Mental Health Incentive							
	No				Yes			
	Total Costs				Total Costs			
	All	Resource Utilization Band			All	Resource Utilization Band		
3		4	5	3		4	5	
<b>All</b>	3,290	1,756	4,249	9,394	4,515	2,795	5,239	9,866
<b>Age Group</b>								
<b>00-44</b>	2,304	1,368	3,719	8,847	3,246	2,320	5,355	5,137
<b>45-59</b>	3,695	1,945	3,548	12,588	5,457	3,460	6,219	11,669
<b>60 and Over</b>	4,509	2,466	5,673	7,143	4,705	2,508	4,229	9,339
<b>Gender</b>								
<b>Females</b>	2,926	1,647	3,972	7,702	4,583	2,709	5,647	11,688
<b>Males</b>	3,939	1,949	4,803	11,683	4,415	2,941	4,650	8,176
<b>Attachment to Practice</b>								
<b>1. 00% - 59%</b>	3,718	1,465	4,409	16,099	7,340	4,859	8,668	15,928
<b>2. 60% - 79%</b>	3,776	1,639	4,944	16,375	5,092	3,077	4,723	10,597
<b>3. 80% or More</b>	2,871	1,936	3,719	5,725	3,699	2,276	4,629	8,267

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.



**Table 20: Categories of Drugs Used 2008/09 for Mental Health Patients with Incentives Excluding Drugs with Less than 5000 Prescriptions**

<b>Drug</b>	<b># of Prescriptions</b>	<b># of Patients</b>	<b>Cost</b>	<b>% of Prescriptions</b>	<b>% of Patients</b>	<b>% of Cost</b>
AMITRIPTYLINE	10,574	1,385	117,290	0.8	6.7	0.3
AMLODIPINE	6,855	755	213,450	0.5	3.6	0.6
ATENOLOL	8,095	714	106,131	0.6	3.4	0.3
ATORVASTATIN	21,838	2,330	1,047,301	1.6	11.2	2.8
BENZTROPINE	10,622	500	88,155	0.8	2.4	0.2
BUPROPION HCL	16,814	1,516	394,925	1.3	7.3	1.1
CARBAMAZEPINE	6,120	403	94,311	0.5	1.9	0.3
CIMETIDINE	7,349	578	80,730	0.5	2.8	0.2
CITALOPRAM HYDROBROMIDE	44,442	4,505	1,071,236	3.3	21.7	2.9
CLONAZEPAM	46,887	3,134	534,716	3.5	15.1	1.4
CLOZAPINE	9,499	202	746,942	0.7	1.0	2.0
COD 30 / ACET 300-325-375	25,895	4,885	310,355	1.9	23.5	0.8
CONJUGATED ESTROGENS	5,225	820	57,279	0.4	3.9	0.2
CYCLOBENZAPRINE	9,354	1,430	157,083	0.7	6.9	0.4
DIAZEPAM	8,343	650	80,774	0.6	3.1	0.2
DIVALPROX	21,326	982	398,679	1.6	4.7	1.1
ETIDRONATE	5,180	653	85,860	0.4	3.1	0.2
FLUOXETINE	11,352	1,175	440,825	0.8	5.7	1.2
FUROSEMIDE	15,295	1,237	111,782	1.1	6.0	0.3
GABAPENTIN	26,437	2,012	1,100,846	2.0	9.7	2.9
GLUCOSE TESTING STRIP	5,890	1,450	498,053	0.4	7.0	1.3
GLYBURIDE	5,243	487	51,587	0.4	2.3	0.1
HYDROCHLOROTHIAZIDE	16,944	2,148	119,650	1.3	10.3	0.3
HYDROMORPHONE	7,948	845	346,133	0.6	4.1	0.9
IBUPROFEN	9,113	1,036	83,908	0.7	5.0	0.2
LAMOTRIGINE	8,393	538	222,549	0.6	2.6	0.6
LEVOTHYROXINE	33,841	2,752	277,469	2.5	13.2	0.7
LITHIUM SALTS	14,836	882	148,259	1.1	4.2	0.4
LORAZEPAM	28,182	4,714	275,007	2.1	22.7	0.7
LOXAPINE	5,829	378	83,316	0.4	1.8	0.2
METFORMIN	19,909	1,663	259,924	1.5	8.0	0.7
METHADONE	77,839	550	843,971	5.8	2.6	2.3

**Table 20 (cont'd)**

	<b># of Prescriptions</b>	<b># of Patients</b>	<b>Cost</b>	<b>% of Prescriptions</b>	<b>% of Patients</b>	<b>% of Cost</b>
<b>METHOTRIMEPRAZINE</b>	5,559	347	54,990	0.4	1.7	0.1
<b>METOPROLOL</b>	11,420	1,005	109,683	0.9	4.8	0.3
<b>MIRTAZAPINE</b>	13,873	1,298	270,776	1.0	6.2	0.7
<b>MORPHINE</b>	12,386	856	515,801	0.9	4.1	1.4
<b>NAPROXEN</b>	8,503	2,051	105,037	0.6	9.9	0.3
<b>OLANZAPINE</b>	22,414	1,013	2,713,231	1.7	4.9	7.3
<b>OXAZEPAM</b>	10,880	1,128	93,779	0.8	5.4	0.3
<b>OXYCODONE / ACET OR ASA</b>	16,441	1,583	687,134	1.2	7.6	1.8
<b>PAROXETINE</b>	15,938	1,575	513,899	1.2	7.6	1.4
<b>POTASSIUM CHLORIDE</b>	5,640	493	47,956	0.4	2.4	0.1
<b>QUETIAPINE FUMARATE</b>	67,839	3,534	2,357,946	5.1	17.0	6.3
<b>RABEPRAZOLE SODIUM</b>	24,353	1,984	674,965	1.8	9.5	1.8
<b>RAMIPRIL</b>	26,656	2,437	519,828	2.0	11.7	1.4
<b>RANITIDINE</b>	9,458	1,042	115,451	0.7	5.0	0.3
<b>RISPERIDONE</b>	33,819	2,012	1,181,584	2.5	9.7	3.2
<b>ROSUVASTATIN</b>	9,523	1,157	337,873	0.7	5.6	0.9
<b>SALBUTAMOL</b>	8,129	2,554	142,925	0.6	12.3	0.4
<b>SERTRALINE</b>	12,881	1,202	406,752	1.0	5.8	1.1
<b>SIMVASTATIN</b>	8,370	789	254,533	0.6	3.8	0.7
<b>SPIRONOLACTONE</b>	5,405	479	46,217	0.4	2.3	0.1
<b>TEMAZEPAM</b>	6,327	683	63,065	0.5	3.3	0.2
<b>TOPIRAMATE</b>	8,647	564	332,683	0.6	2.7	0.9
<b>TRAZODONE</b>	27,998	2,617	387,518	2.1	12.6	1.0
<b>VENLAFAXINE</b>	46,714	3,829	1,615,559	3.5	18.4	4.3
<b>WARFARIN</b>	10,674	736	119,645	0.8	3.5	0.3
<b>ZOPICLONE</b>	22,716	1,398	350,456	1.7	6.7	0.9

Source: British Columbia Ministry of Health Services, Primary Care Data Repository, Fiscal 2008/09.