

# 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: Evaluation of the Congestive Heart Failure (CHF) Payment Incentives to March 31, 2011**

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## HIGHLIGHTS OF FINDINGS

- In terms of unadjusted costs, the average, annual costs for patients who did, and did not, receive incentive based care for CHF were \$9,550 and \$10,209 respectively. When one adjusts for the impacts of age, gender and RUB distributions, the costs were \$9,649 and \$10,260 respectively.
- When we adjust for age, gender, RUB, and attachment level, costs for patients who received incentive based care, compared to those who did not, were \$10,031 and \$10,127, respectively. This resulted in a net cost avoidance (over and above the costs of incentives themselves), based on adjusted data, of \$1.2 million for fiscal 2010/11.
- In terms of hospital utilization, patients who received incentive based care had fewer days in hospital per 1,000 patients both across time and care levels.
- Similarly, there were fewer readmissions per 1,000 admissions for patients who received incentive based care (except for RUB 3).
- Finally, for patients who received incentive based care, the length of time spent in hospital per admission was less than for patients who did not receive incentive based care.
- The above results were maintained when one adjusted for differences in age, gender, RUB and attachment level.

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## 1. INTRODUCTION

The General Practice Services Committee (GPSC) has contracted with Hollander Analytical Services Ltd. to conduct an evaluation of incentive payments instituted under the Full Service Family Practice Incentive Program (FSFPIP). As part of the project to evaluate the FSFPIP, a range of analyses have been conducted on administrative health data. This report presents data on the CHF incentive to March 31, 2011.

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 addition, it is recognized that there may be some false positives, or very low care needs chf patients. Thus, 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 in 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.”<sup>1</sup> In our analysis we adjust for differences in age, sex, RUB 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.

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<sup>1</sup> 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.

## 2. METHODS

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 excluded:

- 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 2010/11 fiscal year.

The overall findings seem to indicate that the use of incentives appears to increase costs for people with low to moderate care needs (i.e., RUB 3). The pattern, however, seems to change for RUBs four and five. This change appears to be the result of people having higher care needs and greater hospital costs.

## 3. SERVICES, RUBS AND SAMPLE SELECTION

The GPSC expressed an interest in obtaining more information about services and RUB levels. In fiscal 2010/11, there were 60 patients on the chf registry who had no services. For RUBs, RUB 0 (zero) is a holding category for patients who could not be placed in RUBs 1 to 5. There were 426 patients at RUB 0. The following tables exclude patients at RUB 0 and patients with no services in the fiscal year.

Table 1 presents detailed information on the number of patients who received at least one service and were at least at RUB 1. As can be seen in Table 1, there were relatively few patients who received incentive based care both in absolute numbers, and in relation to the number of people who did not receive incentive based care, for people who had one to four services. Our selected sample is in the shaded area in Table 1. Tables 1 and 2 also include comparative, raw, or unadjusted, cost data for patients who did, and did not, receive incentive based care. Table 3 shows the number of patients at each intersection between the number of services and RUB levels. There is clearly a direct relationship between RUB level and the number of services. Table 3 shows that more people with low number of services were at low RUB levels and more people with high numbers of services were at higher RUB levels.

It should be noted that Tables 1 to 3 refer to our initial selection of patients. Once the patients were selected we applied some of our screens (excluding RUB levels and the number of services) (see Methods section). Once the screens were applied, the number of people in the analysis dropped from 91,032 to 73,027, Table 4 presents data on the patients in our analysis. After we applied the RUB and services screens 65,417 patients remained in our analysis. As can be seen in Tables 2 and 4, costs increase the more services one has and the higher the RUB level. Table 4 indicates unadjusted annual costs at \$10,920 for patients who did not have an incentive compared to \$9,550 for patients who did receive incentive based care. Tables 5 to 8 show the comparative, unadjusted costs for people who did, and did not, receive incentive based care in fiscal 10/11, overall and by RUB level. These Tables also show cost breakdowns over time. It is

interesting to note that total, annual, raw costs, remained relatively constant over time for RUB 3 patients for those who did, and did not, receive incentive based care, while costs decreased over time, for both groups, for RUBs 4 and 5.

**Table 1: Patients with Congestive Heart Failure for RUBs 1 to 5 and at Least One GP Service (April 2010 to March 2011)**

| Congestive Heart Failure         | Number of Patients | % of Patients | Number of Patients with Related Incentive |        | % of Patients with Related Incentive By Services |       | Average Total Cost |        | % of Patients with Related Incentive Within Service Group |
|----------------------------------|--------------------|---------------|---|--------|--|-------|--------------------|--------|---|
|                                  |                    |               | No  | Yes    | No   | Yes   | No                 | Yes    |   |
| <b>All</b>                       | 91,032             | 100.0         | 71,116                                    | 19,916 | 100.0  | 100.0 | 12,257             | 11,342 | 21.9  |
| <b>GP Services</b>               |                    |               |   |        |  |       |                    |        |   |
| <b>01</b>                        | 1,500              | 1.6           | 1,459                                     | 41     | 2.1  | 0.2   | 3,949              | 3,341  | 2.7   |
| <b>02</b>                        | 1,857              | 2.0           | 1,790                                     | 67     | 2.5  | 0.3   | 3,288              | 1,750  | 3.6   |
| <b>03</b>                        | 2,338              | 2.6           | 2,160                                     | 178    | 3.0  | 0.9   | 3,535              | 1,782  | 7.6   |
| <b>04</b>                        | 2,763              | 3.0           | 2,493                                     | 270    | 3.5  | 1.4   | 3,381              | 2,372  | 9.8   |
| <b>05</b>                        | 3,163              | 3.5           | 2,754                                     | 409    | 3.9  | 2.1   | 3,867              | 2,597  | 12.9  |
| <b>06</b>                        | 3,457              | 3.8           | 2,927                                     | 530    | 4.1  | 2.7   | 4,024              | 3,149  | 15.3  |
| <b>07</b>                        | 3,819              | 4.2           | 3,124                                     | 695    | 4.4  | 3.5   | 3,950              | 2,979  | 18.2  |
| <b>08</b>                        | 3,676              | 4.0           | 2,947                                     | 729    | 4.1  | 3.7   | 4,408              | 3,153  | 19.8  |
| <b>09</b>                        | 3,599              | 4.0           | 2,827                                     | 772    | 4.0  | 3.9   | 4,932              | 3,877  | 21.5  |
| <b>10-14</b>                     | 15,858             | 17.4          | 12,295                                    | 3,563  | 17.3   | 17.9  | 6,239              | 4,840  | 22.5  |
| <b>15-19</b>                     | 11,782             | 12.9          | 8,798                                     | 2,984  | 12.4   | 15.0  | 8,362              | 6,824  | 25.3  |
| <b>20 or More</b>                | 37,220             | 40.9          | 27,542                                    | 9,678  | 38.7   | 48.6  | 22,945             | 18,287 | 26.0  |
| <b>Resource Utilization Band</b> |                    |               |   |        |  |       |                    |        |   |
| <b>1</b>                         | 350                | 0.4           | 350                                       | .      | 0.5  | .     | 552                | .      | 0.0   |
| <b>2</b>                         | 2,641              | 2.9           | 2,637                                     | <5     | 3.7  | 0.0   | 1,112              | 1,070  | 0.2   |
| <b>3</b>                         | 37,076             | 40.7          | 29,121                                    | 7,955  | 40.9   | 39.9  | 3,572              | 3,977  | 21.5  |
| <b>4</b>                         | 25,146             | 27.6          | 18,915                                    | 6,231  | 26.6   | 31.3  | 8,821              | 8,280  | 24.8  |
| <b>5</b>                         | 25,819             | 28.4          | 20,093                                    | 5,726  | 28.3   | 28.8  | 29,744             | 24,914 | 22.2  |

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

**Table 2: Patients with Congestive Heart Failure For Rubs 1 to 5 and at Least One GP Service (April 2010 to March 2011)**

| Congestive Heart Failure                          | Number of Patients | % of Patients | Number of Patients with Related Incentive |        | % of Patients with Related Incentive By Services |        | Average Total Cost |        | % of Patients with Related Incentive Within Service Group |
|---|--------------------|---------------|---|--------|--|--------|--------------------|--------|---|
|   |                    |               | No  | Yes    | No   | Yes    | No                 | Yes    |   |
|   |                    |               | <b>All</b>                                | 91,032 | 100.0  | 71,116 | 19,916             | 100.0  |   |
| <b>1. Rub 1 or 2 with Less than 5 GP services</b> | 1,956              | 2.1           | 1,953                                     | 3      | 2.7  | 0.0    | 817                | 1,359  | 0.2   |
| <b>2. Rub 1 or 2 with 5 or More GP services</b>   | 1,035              | 1.1           | 1,034                                     | 1      | 1.5  | 0.0    | 1,479              | 204    | 0.1   |
| <b>3. Rub 3,4,5 with Less than 5 GP services</b>  | 6,502              | 7.1           | 5,949                                     | 553    | 8.4  | 2.8    | 4,390              | 2,184  | 8.5   |
| <b>4. Rub 3,4,5 with 5 or More GP services</b>    | 81,539             | 89.6          | 62,180                                    | 19,359 | 87.4   | 97.2   | 13,548             | 11,606 | 23.7  |

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

**Table 3: Patients with Congestive Heart Failure for Rubs 1 to 5 and at Least One GP Service (April 2010 to March 2011)**

| Congestive Heart Failure | Number of Patients | Number of Patients<br>Resource Utilization Band |       |        |        |        | % of Patients<br>Resource Utilization Band |       |       |       |       |
|--------------------------|--------------------|---|-------|--------|--------|--------|--|-------|-------|-------|-------|
|                          |                    | 1   | 2     | 3      | 4      | 5      | 1  | 2     | 3     | 4     | 5     |
| <b>All</b>               | 91,032             | 350   | 2,641 | 37,076 | 25,146 | 25,819 | 100.0                                      | 100.0 | 100.0 | 100.0 | 100.0 |
| <b>GP Services</b>       |                    |   |       |        |        |        |  |       |       |       |       |
| <b>01</b>                | 1,500              | 179   | 527   | 628    | 108    | 58     | 51.1                                       | 20.0  | 1.7   | 0.4   | 0.2   |
| <b>02</b>                | 1,857              | 81  | 449   | 1,112  | 139    | 76     | 23.1                                       | 17.0  | 3.0   | 0.6   | 0.3   |
| <b>03</b>                | 2,338              | 35  | 357   | 1,604  | 229    | 113    | 10.0                                       | 13.5  | 4.3   | 0.9   | 0.4   |
| <b>04</b>                | 2,763              | 20  | 308   | 1,955  | 367    | 113    | 5.7  | 11.7  | 5.3   | 1.5   | 0.4   |
| <b>05</b>                | 3,163              | 5   | 253   | 2,237  | 506    | 162    | 1.4  | 9.6   | 6.0   | 2.0   | 0.6   |
| <b>06</b>                | 3,457              | 9   | 182   | 2,394  | 674    | 198    | 2.6  | 6.9   | 6.5   | 2.7   | 0.8   |
| <b>07</b>                | 3,819              | 6   | 145   | 2,538  | 873    | 257    | 1.7  | 5.5   | 6.8   | 3.5   | 1.0   |
| <b>08</b>                | 3,676              | <5  | 72    | 2,346  | 961    | 293    | 1.1  | 2.7   | 6.3   | 3.8   | 1.1   |
| <b>09</b>                | 3,599              | .   | 61    | 2,173  | 983    | 382    | .  | 2.3   | 5.9   | 3.9   | 1.5   |
| <b>10-14</b>             | 15,858             | 6   | 149   | 8,252  | 4,980  | 2,471  | 1.7  | 5.6   | 22.3  | 19.8  | 9.6   |
| <b>15-19</b>             | 11,782             | <5  | 72    | 4,586  | 4,210  | 2,912  | 0.6  | 2.7   | 12.4  | 16.7  | 11.3  |
| <b>20 or More</b>        | 37,220             | <5  | 66    | 7,251  | 11,116 | 18,784 | 0.9  | 2.5   | 19.6  | 44.2  | 72.8  |

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



**Table 4: Screened Patients with Congestive Heart Failure by Services, RUBs and Costs (April 2010 to March 2011)**

| Congestive Heart Failure                          | Number of Patients | % of Patients | Number of Patients with Related Incentive |        | % of Patients with Related Incentive By Services |        | Average Total Cost |       | % of Patients with Related Incentive Within Service Group |
|---|--------------------|---------------|---|--------|--|--------|--------------------|-------|---|
|   |                    |               | No  | Yes    | No   | Yes    | No                 | Yes   |   |
|   |                    |               | <b>All</b>                                | 73,027 | 100.0  | 55,682 | 17,345             | 100.0 |   |
| <b>1. Rub 1 or 2 with Less than 5 GP services</b> | 1,533              | 2.1           | 1,530                                     | <5     | 2.7  | 0.0    | 684                | 1,359 | 0.2   |
| <b>2. Rub 1 or 2 with 5 or More GP services</b>   | 720                | 1.0           | 719                                       | <5     | 1.3  | 0.0    | 1,449              | 204   | 0.1   |
| <b>3. Rub 3,4,5 with Less than 5 GP services</b>  | 5,357              | 7.3           | 4,850                                     | 507    | 8.7  | 2.9    | 3,227              | 1,947 | 9.5   |
| <b>4. Rub 3,4,5 with 5 or More GP services</b>    | 65,417             | 89.6          | 48,583                                    | 16,834 | 87.3   | 97.1   | 10,290             | 9,550 | 25.7  |

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

**Table 5: Average Annual Cost Summaries by Year for All Patients with CHF**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | No                      |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 678                     | 671    | 691    | 917    | 843    | 900    | 929    |
|          | Specialist Amount                  | 821                     | 839    | 866    | 902    | 954    | 989    | 1,026  |
|          | Diag Fac Amount                    | 673                     | 673    | 680    | 673    | 706    | 712    | 716    |
|          | GP Specialist and Diag Fac Amounts | 2,172                   | 2,182  | 2,237  | 2,493  | 2,503  | 2,600  | 2,672  |
|          | Pharmacy Costs                     | 1,427                   | 1,505  | 1,557  | 1,570  | 1,576  | 1,541  | 1,513  |
|          | Hospital Costs                     | 6,098                   | 6,107  | 6,001  | 5,879  | 5,997  | 5,894  | 6,105  |
|          | Total Costs                        | 9,697                   | 9,794  | 9,795  | 9,942  | 10,075 | 10,035 | 10,290 |
| Patients |                                    | 44,123                  | 45,642 | 45,097 | 44,425 | 45,602 | 48,148 | 48,583 |

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | Yes                     |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 798                     | 788    | 840    | 1,307  | 1,106  | 1,162  | 1,185  |
|          | Specialist Amount                  | 725                     | 754    | 756    | 782    | 805    | 835    | 878    |
|          | Diag Fac Amount                    | 726                     | 742    | 727    | 715    | 735    | 735    | 742    |
|          | GP Specialist and Diag Fac Amounts | 2,249                   | 2,284  | 2,323  | 2,804  | 2,645  | 2,732  | 2,805  |
|          | Pharmacy Costs                     | 1,473                   | 1,530  | 1,525  | 1,604  | 1,597  | 1,541  | 1,532  |
|          | Hospital Costs                     | 5,605                   | 5,649  | 5,325  | 5,174  | 5,031  | 4,990  | 5,213  |
|          | Total Costs                        | 9,327                   | 9,463  | 9,173  | 9,581  | 9,274  | 9,263  | 9,550  |
| Patients |                                    | 5,399                   | 7,151  | 9,623  | 13,039 | 13,971 | 15,181 | 16,834 |

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

**Table 6: Average Annual Cost Summaries By Year for All Patients with Congestive Heart Failure for RUB 3**

**Resource Utilization Band 3**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | No                      |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 445                     | 434    | 453    | 617    | 561    | 593    | 605    |
|          | Specialist Amount                  | 332                     | 337    | 349    | 351    | 367    | 382    | 405    |
|          | Diag Fac Amount                    | 467                     | 468    | 477    | 462    | 485    | 482    | 491    |
|          | GP Specialist and Diag Fac Amounts | 1,245                   | 1,239  | 1,279  | 1,430  | 1,414  | 1,457  | 1,501  |
|          | Pharmacy Costs                     | 1,219                   | 1,252  | 1,302  | 1,276  | 1,287  | 1,256  | 1,201  |
|          | Hospital Costs                     | 1,402                   | 1,299  | 1,222  | 1,110  | 1,138  | 1,132  | 1,162  |
|          | Total Costs                        | 3,866                   | 3,790  | 3,803  | 3,816  | 3,838  | 3,845  | 3,864  |
| Patients |                                    | 21,562                  | 21,952 | 22,184 | 20,134 | 20,688 | 21,407 | 21,020 |

**Resource Utilization Band 3**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | Yes                     |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 557                     | 545    | 598    | 1,006  | 823    | 868    | 884    |
|          | Specialist Amount                  | 299                     | 333    | 319    | 334    | 348    | 351    | 381    |
|          | Diag Fac Amount                    | 524                     | 549    | 532    | 526    | 549    | 545    | 543    |
|          | GP Specialist and Diag Fac Amounts | 1,380                   | 1,426  | 1,450  | 1,865  | 1,720  | 1,763  | 1,808  |
|          | Pharmacy Costs                     | 1,289                   | 1,312  | 1,335  | 1,386  | 1,335  | 1,293  | 1,250  |
|          | Hospital Costs                     | 1,414                   | 1,392  | 1,174  | 1,141  | 1,118  | 1,012  | 1,035  |
|          | Total Costs                        | 4,084                   | 4,130  | 3,959  | 4,393  | 4,173  | 4,068  | 4,093  |
| Patients |                                    | 2,433                   | 3,217  | 4,414  | 5,516  | 5,997  | 6,479  | 7,018  |

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

**Table 7: Average Annual Cost Summaries By Year for All Patients with Congestive Heart Failure for RUB 4**

**Resource Utilization Band 4**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | No                      |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 709                     | 694    | 717    | 950    | 854    | 906    | 910    |
|          | Specialist Amount                  | 777                     | 780    | 814    | 804    | 837    | 882    | 888    |
|          | Diag Fac Amount                    | 731                     | 728    | 738    | 713    | 751    | 756    | 742    |
|          | GP Specialist and Diag Fac Amounts | 2,218                   | 2,203  | 2,270  | 2,468  | 2,442  | 2,544  | 2,540  |
|          | Pharmacy Costs                     | 1,491                   | 1,581  | 1,655  | 1,662  | 1,636  | 1,597  | 1,549  |
|          | Hospital Costs                     | 5,415                   | 5,335  | 5,162  | 4,436  | 4,511  | 4,416  | 4,290  |
|          | Total Costs                        | 9,124                   | 9,119  | 9,087  | 8,566  | 8,589  | 8,557  | 8,379  |
| Patients |                                    | 12,757                  | 13,268 | 12,681 | 13,320 | 13,721 | 14,609 | 14,699 |

**Resource Utilization Band 4**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | Yes                     |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 818                     | 800    | 841    | 1,313  | 1,105  | 1,143  | 1,154  |
|          | Specialist Amount                  | 662                     | 687    | 686    | 678    | 742    | 744    | 776    |
|          | Diag Fac Amount                    | 766                     | 756    | 759    | 722    | 762    | 746    | 758    |
|          | GP Specialist and Diag Fac Amounts | 2,246                   | 2,243  | 2,286  | 2,713  | 2,609  | 2,633  | 2,688  |
|          | Pharmacy Costs                     | 1,504                   | 1,549  | 1,482  | 1,606  | 1,623  | 1,569  | 1,597  |
|          | Hospital Costs                     | 4,762                   | 4,783  | 4,410  | 3,808  | 3,846  | 3,742  | 3,644  |
|          | Total Costs                        | 8,512                   | 8,574  | 8,178  | 8,127  | 8,078  | 7,945  | 7,928  |
| Patients |                                    | 1,771                   | 2,309  | 3,057  | 4,222  | 4,453  | 4,827  | 5,458  |

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

**Table 8: Average Annual Cost Summaries By Year for All Patients with Congestive Heart Failure for RUB 5**

**Resource Utilization Band 5**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | No                      |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 1,150                   | 1,142  | 1,172  | 1,429  | 1,352  | 1,433  | 1,480  |
|          | Specialist Amount                  | 1,952                   | 1,970  | 2,051  | 2,034  | 2,180  | 2,191  | 2,200  |
|          | Diag Fac Amount                    | 1,050                   | 1,032  | 1,050  | 1,013  | 1,059  | 1,063  | 1,055  |
|          | GP Specialist and Diag Fac Amounts | 4,152                   | 4,144  | 4,274  | 4,476  | 4,591  | 4,686  | 4,735  |
|          | Pharmacy Costs                     | 1,798                   | 1,940  | 1,988  | 1,996  | 2,037  | 1,974  | 1,983  |
|          | Hospital Costs                     | 17,315                  | 17,215 | 17,402 | 16,384 | 16,799 | 16,075 | 16,254 |
|          | Total Costs                        | 23,265                  | 23,298 | 23,664 | 22,855 | 23,427 | 22,736 | 22,972 |
| Patients |                                    | 9,804                   | 10,422 | 10,232 | 10,971 | 11,193 | 12,132 | 12,864 |

**Resource Utilization Band 5**

| Averages |                                    | Heart Failure Incentive |        |        |        |        |        |        |
|----------|------------------------------------|-------------------------|--------|--------|--------|--------|--------|--------|
|          |                                    | Yes                     |        |        |        |        |        |        |
|          |                                    | Year                    |        |        |        |        |        |        |
|          |                                    | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Average  | GP Amount                          | 1,259                   | 1,251  | 1,332  | 1,803  | 1,588  | 1,677  | 1,710  |
|          | Specialist Amount                  | 1,686                   | 1,685  | 1,753  | 1,664  | 1,662  | 1,757  | 1,807  |
|          | Diag Fac Amount                    | 1,077                   | 1,106  | 1,081  | 1,020  | 1,019  | 1,040  | 1,041  |
|          | GP Specialist and Diag Fac Amounts | 4,022                   | 4,042  | 4,166  | 4,487  | 4,268  | 4,474  | 4,558  |
|          | Pharmacy Costs                     | 1,800                   | 1,933  | 1,978  | 1,968  | 2,011  | 1,919  | 1,905  |
|          | Hospital Costs                     | 15,387                  | 15,308 | 15,138 | 13,658 | 13,195 | 13,197 | 13,907 |
|          | Total Costs                        | 21,209                  | 21,283 | 21,282 | 20,112 | 19,474 | 19,591 | 20,370 |
| Patients |                                    | 1,195                   | 1,625  | 2,152  | 3,301  | 3,521  | 3,875  | 4,358  |

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

#### **4. PATTERNS OF HOSPITAL UTILIZATION**

Table 9 presents unadjusted data, for RUBs 3 to 5 for a number of hospital based indicators by year. As can be seen, patients who received incentive based care consistently had fewer hospital days per 1,000 patients.

As can be seen in Tables 9 to 12, except for RUB 3, patients who receive incentive based care consistently had fewer readmissions, overall, by RUB and by type of readmission (7, 15, or 30 day readmissions) per 1,000 admissions in fiscal 2010/11. There were, as expected, also significant increases in hospital days per 1,000 patients as one moved from RUB 3 to RUB 5. Finally, for “net” hospital admissions (admissions excluding transfers and day care) there was a consistent pattern, overall and by RUB level, in admissions over time from fiscal 2004/05 to fiscal 2010/11 such that patients who received incentive based care had fewer “net” admissions.

The next series of Tables (Tables 13 to 16) provide data on hospital lengths of stay for different definitions of admission. “Admissions” are all admissions less day care admissions. “Stays” are admissions less day care admissions and transfers. “Episodes” are admissions less day care and transfers, and less readmissions within 30 days. As can be seen from these tables, the average length of stay is shorter, overall and across RUB levels, for patients who received incentive based care.

**Table 9a: Average Annual Service Summaries by Year for All Patients with Congestive Heart Failure Who Did Not Receive Incentive Based Care for All RUBS**

All RUBs \*

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|
|   |        | No                      |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 |
| GP Services   | 20.6   | 20.9                    | 20.7   | 22.0   | 20.6   | 20.8   | 21.3   |
| Specialist Services   | 11.3   | 12.4                    | 12.6   | 12.6   | 12.8   | 12.7   | 13.1   |
| Diag Fac Service  | 44.4   | 46.0                    | 46.8   | 49.0   | 49.9   | 50.3   | 50.5   |
| GP Specialist and Diag Fac Services                                 | 76.3   | 79.3                    | 80.1   | 83.6   | 83.3   | 83.8   | 84.9   |
| Hospital Days per 1000 Patients                                     | 5526.2 | 5523.7                  | 5349.6 | 5123.2 | 5176.9 | 4994.4 | 5285.6 |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 979.9  | 971.6                   | 937.0  | 910.2  | 923.0  | 905.1  | 930.5  |
| Hospital Day Care Days per 1000 Patients                            | 298.8  | 314.6                   | 310.5  | 309.8  | 320.4  | 312.2  | 319.0  |
| Hospital Transfers per 1000 Patients                                | 65.3   | 62.4                    | 61.1   | 55.5   | 58.0   | 55.1   | 53.5   |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 615.7  | 594.5                   | 565.4  | 544.9  | 544.6  | 537.8  | 558.0  |
| Readmission Within 7 days per 1000 net Admissions                   | 64.5   | 64.0                    | 67.8   | 63.9   | 64.9   | 65.0   | 68.9   |
| Readmission Within 15 days per 1000 net Admissions                  | 108.1  | 106.6                   | 109.1  | 106.3  | 107.4  | 109.5  | 113.9  |
| Readmission Within 30 days per 1000 net Admissions                  | 162.3  | 158.5                   | 160.4  | 157.1  | 158.3  | 162.2  | 166.6  |
| Age   | 74.4   | 74.3                    | 74.3   | 74.1   | 74.1   | 74.3   | 74.3   |
| Attachment to Practice  | 79.4   | 80.2                    | 79.9   | 80.7   | 79.7   | 79.2   | 79.1   |
| Patients  | 44,123 | 45,642                  | 45,097 | 44,425 | 45,602 | 48,148 | 48,583 |

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

**Table 9b: Average Annual Service Summaries by Year for All Patients with Congestive Heart Failure Who Received Incentive Based Care for All RUBS**

All RUBs \*

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|
|   |        | Yes                     |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 |
| GP Services   | 23.7   | 24.1                    | 23.2   | 26.5   | 23.1   | 23.2   | 23.6   |
| Specialist Services   | 10.3   | 11.1                    | 11.3   | 11.1   | 11.0   | 10.6   | 11.4   |
| Diag Fac Service  | 51.1   | 52.2                    | 51.3   | 53.8   | 54.1   | 53.4   | 53.9   |
| GP Specialist and Diag Fac Services                                 | 85.1   | 87.4                    | 85.8   | 91.3   | 88.2   | 87.3   | 88.8   |
| Hospital Days per 1000 Patients                                     | 5089.8 | 4905.2                  | 4592.9 | 4247.9 | 4217.7 | 4210.7 | 4466.6 |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 916.1  | 925.7                   | 858.6  | 843.9  | 824.4  | 823.3  | 830.5  |
| Hospital Day Care Days per 1000 Patients                            | 266.5  | 287.5                   | 287.9  | 283.3  | 286.1  | 279.7  | 294.8  |
| Hospital Transfers per 1000 Patients                                | 42.0   | 51.2                    | 44.3   | 37.5   | 39.9   | 40.6   | 40.0   |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 607.5  | 587.1                   | 526.4  | 523.1  | 498.3  | 502.9  | 495.7  |
| Readmission Within 7 days per 1000 net Admissions                   | 64.3   | 55.7                    | 68.7   | 62.5   | 59.9   | 61.2   | 59.8   |
| Readmission Within 15 days per 1000 net Admissions                  | 108.5  | 96.5                    | 110.1  | 106.4  | 98.5   | 102.6  | 102.9  |
| Readmission Within 30 days per 1000 net Admissions                  | 169.5  | 153.4                   | 159.1  | 161.3  | 151.8  | 161.9  | 156.6  |
| Age   | 77.2   | 77.5                    | 77.1   | 76.8   | 76.8   | 76.6   | 76.6   |
| Attachment to Practice  | 84.6   | 84.7                    | 84.1   | 85.4   | 84.0   | 83.7   | 83.1   |
| Patients  | 5,399  | 7,151                   | 9,623  | 13,039 | 13,971 | 15,181 | 16,834 |

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



**Table 10a: Average Annual Service Summaries by Year For All Patients with Congestive Heart Failure Who Did Not Receive Incentive Based Care: RUB 3**

**Resource Utilization Band 3**

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|   |        | No                      |        |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| GP Services   | 14.4   | 14.4                    | 14.5   | 15.2   | 14.2   | 14.2   | 14.1   |        |
| Specialist Services   | 4.4    | 5.3                     | 5.7    | 5.4    | 5.4    | 5.1    | 5.3    |        |
| Diag Fac Service  | 33.0   | 33.8                    | 34.6   | 35.9   | 36.8   | 36.4   | 36.9   |        |
| GP Specialist and Diag Fac Services                                 | 51.9   | 53.5                    | 54.8   | 56.4   | 56.4   | 55.6   | 56.4   |        |
| Hospital Days per 1000 Patients                                     | 1178.6 | 1101.9                  | 1033.9 | 920.0  | 947.0  | 906.5  | 925.2  |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 380.6  | 363.2                   | 349.9  | 329.1  | 342.7  | 327.0  | 337.5  |        |
| Hospital Day Care Days per 1000 Patients                            | 185.7  | 190.7                   | 190.2  | 186.4  | 195.5  | 188.7  | 193.9  |        |
| Hospital Transfers per 1000 Patients                                | 7.6    | 5.8                     | 5.7    | 4.0    | 5.2    | 4.4    | 4.1    |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 187.3  | 166.6                   | 154.0  | 138.7  | 142.1  | 133.9  | 139.5  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 24.3   | 24.1                    | 30.4   | 25.8   | 22.8   | 25.1   | 29.7   |        |
| Readmission Within 15 days per 1000 net Admissions                  | 40.6   | 42.9                    | 47.1   | 40.1   | 36.1   | 41.9   | 44.7   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 64.1   | 62.1                    | 66.2   | 57.3   | 60.9   | 66.3   | 66.8   |        |
| Age   | 74.1   | 73.9                    | 73.9   | 73.3   | 73.3   | 73.3   | 73.2   |        |
| Attachment to Practice  | 83.9   | 84.8                    | 84.4   | 85.2   | 84.4   | 84.0   | 84.2   |        |
| Patients  | 21,562 | 21,952                  | 22,184 | 20,134 | 20,688 | 21,407 | 21,020 |        |

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

**Table 10b: Average Annual Service Summaries by Year for All Patients with Congestive Heart Failure Who Received Incentive Based Care: RUB 3**

**Resource Utilization Band 3**

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|   |        | Yes                     |        |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| GP Services   | 17.1   | 17.5                    | 16.8   | 19.5   | 16.6   | 16.5   | 16.5   |        |
| Specialist Services   | 4.0    | 5.0                     | 5.5    | 5.2    | 5.1    | 4.6    | 5.2    |        |
| Diag Fac Service  | 39.2   | 40.9                    | 40.6   | 42.5   | 43.0   | 42.2   | 42.2   |        |
| GP Specialist and Diag Fac Services                                 | 60.2   | 63.4                    | 62.9   | 67.1   | 64.7   | 63.2   | 63.9   |        |
| Hospital Days per 1000 Patients                                     | 1106.9 | 1089.2                  | 974.4  | 863.5  | 812.7  | 762.9  | 812.2  |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 363.7  | 382.7                   | 329.9  | 307.7  | 308.2  | 294.2  | 315.3  |        |
| Hospital Day Care Days per 1000 Patients                            | 160.3  | 191.2                   | 178.1  | 160.8  | 169.6  | 160.8  | 190.8  |        |
| Hospital Transfers per 1000 Patients                                | 5.8    | 5.9                     | 4.5    | 4.4    | 3.7    | 3.1    | 2.3    |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 197.7  | 185.6                   | 147.3  | 142.5  | 134.9  | 130.3  | 122.3  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 35.3   | 13.4                    | 40.0   | 20.4   | 27.2   | 35.5   | 32.6   |        |
| Readmission Within 15 days per 1000 net Admissions                  | 45.7   | 31.8                    | 53.8   | 35.6   | 45.7   | 52.1   | 49.0   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 81.1   | 58.6                    | 69.2   | 53.4   | 60.6   | 80.6   | 62.9   |        |
| Age   | 77.0   | 77.0                    | 76.8   | 76.1   | 76.2   | 75.6   | 75.7   |        |
| Attachment to Practice  | 88.9   | 89.1                    | 88.6   | 90.0   | 88.3   | 88.4   | 87.9   |        |
| Patients  | 2,433  | 3,217                   | 4,414  | 5,516  | 5,997  | 6,479  | 7,018  |        |

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

**Table 11a: Average Annual Service Summaries by Year For All Patients with Congestive Heart Failure Who Did Not Receive Incentive Based Care: RUB 4**

**Resource Utilization Band 4**

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|   |        | No                      |        |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| GP Services   | 21.6   | 21.8                    | 21.6   | 22.7   | 20.8   | 20.9   | 20.9   |        |
| Specialist Services   | 10.8   | 11.7                    | 12.1   | 11.5   | 11.5   | 11.4   | 11.4   |        |
| Diag Fac Service  | 47.1   | 48.8                    | 49.8   | 51.6   | 52.4   | 52.5   | 51.6   |        |
| GP Specialist and Diag Fac Services                                 | 79.4   | 82.3                    | 83.5   | 85.7   | 84.8   | 84.7   | 84.0   |        |
| Hospital Days per 1000 Patients                                     | 4903.3 | 4783.2                  | 4576.4 | 3851.7 | 3857.5 | 3675.2 | 3596.5 |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 1026.1 | 1016.4                  | 976.9  | 879.4  | 882.0  | 869.0  | 842.6  |        |
| Hospital Day Care Days per 1000 Patients                            | 341.0  | 355.1                   | 350.1  | 340.5  | 347.6  | 344.5  | 337.9  |        |
| Hospital Transfers per 1000 Patients                                | 50.6   | 49.4                    | 45.6   | 36.7   | 35.3   | 38.3   | 29.9   |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 634.5  | 611.9                   | 581.2  | 502.2  | 499.2  | 486.2  | 474.8  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 47.2   | 48.2                    | 46.8   | 45.4   | 45.7   | 45.9   | 52.2   |        |
| Readmission Within 15 days per 1000 net Admissions                  | 79.6   | 78.1                    | 76.3   | 69.8   | 75.5   | 79.7   | 84.5   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 120.7  | 114.5                   | 115.3  | 104.5  | 107.5  | 115.3  | 119.5  |        |
| Age   | 74.4   | 74.6                    | 74.5   | 74.5   | 74.4   | 74.6   | 74.6   |        |
| Attachment to Practice  | 78.3   | 79.2                    | 78.7   | 80.6   | 79.3   | 78.9   | 79.2   |        |
| Patients  | 12,757 | 13,268                  | 12,681 | 13,320 | 13,721 | 14,609 | 14,699 |        |

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

**Table 11b: Average Annual Service Summaries by Year for All Patients with Congestive Heart Failure Who Received Incentive Based Care: RUB 4**

**Resource Utilization Band 4**

| Averages  |        | Heart Failure Incentive |        |        |        |        |        |        |
|---|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|   |        | Yes                     |        |        |        |        |        |        |
|   |        | Year                    |        |        |        |        |        |        |
|   |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| GP Services   | 24.7   | 24.3                    | 23.3   | 26.8   | 23.2   | 23.1   | 22.9   |        |
| Specialist Services   | 9.4    | 10.3                    | 10.4   | 9.9    | 10.3   | 9.6    | 10.1   |        |
| Diag Fac Service  | 53.4   | 53.1                    | 52.4   | 53.9   | 55.0   | 53.1   | 54.3   |        |
| GP Specialist and Diag Fac Services                                 | 87.4   | 87.8                    | 86.2   | 90.5   | 88.4   | 85.7   | 87.3   |        |
| Hospital Days per 1000 Patients                                     | 4236.6 | 4094.0                  | 3771.7 | 3050.7 | 3055.9 | 3068.8 | 2967.4 |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 935.6  | 903.0                   | 842.3  | 780.7  | 781.0  | 773.8  | 755.4  |        |
| Hospital Day Care Days per 1000 Patients                            | 299.8  | 304.0                   | 320.9  | 301.8  | 313.7  | 319.0  | 318.4  |        |
| Hospital Transfers per 1000 Patients                                | 28.2   | 37.2                    | 22.2   | 17.5   | 25.2   | 27.3   | 22.2   |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 607.6  | 561.7                   | 499.2  | 461.4  | 442.2  | 427.4  | 414.8  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 55.8   | 35.5                    | 57.7   | 52.9   | 48.2   | 41.2   | 41.1   |        |
| Readmission Within 15 days per 1000 net Admissions                  | 91.1   | 62.5                    | 87.8   | 82.1   | 72.1   | 68.3   | 72.0   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 132.0  | 110.3                   | 122.5  | 123.7  | 114.8  | 106.6  | 110.0  |        |
| Age   | 77.4   | 77.8                    | 77.3   | 77.2   | 76.8   | 76.9   | 76.9   |        |
| Attachment to Practice  | 84.2   | 83.8                    | 83.5   | 85.2   | 84.0   | 83.5   | 83.1   |        |
| Patients  | 1,771  | 2,309                   | 3,057  | 4,222  | 4,453  | 4,827  | 5,458  |        |

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

**Table 12a: Average Annual Service Summaries by Year For All Patients with Congestive Heart Failure Who Did Not Receive Incentive Based Care: RUB 5**

**Resource Utilization Band 5**

| Averages  |         | Heart Failure Incentive |         |         |         |         |         |        |
|---|---------|-------------------------|---------|---------|---------|---------|---------|--------|
|   |         | No                      |         |         |         |         |         |        |
|   |         | Year                    |         |         |         |         |         |        |
|   |         | 200405                  | 200506  | 200607  | 200708  | 200809  | 200910  | 201011 |
| GP Services   | 32.7    | 33.3                    | 33.0    | 33.7    | 32.3    | 32.3    | 33.5    |        |
| Specialist Services   | 27.3    | 28.3                    | 28.3    | 27.3    | 28.0    | 27.7    | 27.6    |        |
| Diag Fac Service  | 65.9    | 68.3                    | 69.6    | 69.9    | 71.0    | 72.4    | 71.5    |        |
| GP Specialist and Diag Fac Services                                 | 125.9   | 129.8                   | 130.9   | 130.9   | 131.3   | 132.5   | 132.7   |        |
| Hospital Days per 1000 Patients                                     | 15898.7 | 15780.0                 | 15664.7 | 14380.8 | 14612.4 | 13796.0 | 14340.4 |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 2237.7  | 2196.1                  | 2160.6  | 2014.1  | 2045.8  | 1968.5  | 1999.8  |        |
| Hospital Day Care Days per 1000 Patients                            | 492.8   | 524.2                   | 522.2   | 498.9   | 517.8   | 491.3   | 501.9   |        |
| Hospital Transfers per 1000 Patients                                | 211.3   | 198.2                   | 200.5   | 172.9   | 183.5   | 164.8   | 161.0   |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 1533.6  | 1473.7                  | 1437.8  | 1342.4  | 1344.5  | 1312.4  | 1336.8  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 84.7    | 81.9                    | 87.1    | 79.4    | 81.9    | 80.7    | 82.4    |        |
| Readmission Within 15 days per 1000 net Admissions                  | 141.5   | 136.9                   | 139.9   | 135.5   | 135.9   | 134.9   | 137.6   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 211.1   | 204.6                   | 204.9   | 199.9   | 200.4   | 200.4   | 202.8   |        |
| Age   | 74.8    | 75.0                    | 75.0    | 75.1    | 75.2    | 75.5    | 75.9    |        |
| Attachment to Practice  | 70.9    | 72.0                    | 71.5    | 72.6    | 71.6    | 71.1    | 70.7    |        |
| Patients  | 9,804   | 10,422                  | 10,232  | 10,971  | 11,193  | 12,132  | 12,864  |        |

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

**Table 12b: Average Annual Service Summaries by Year for All Patients with Congestive Heart Failure Who Received Incentive Based Care: RUB 5**

**Resource Utilization Band 5**

| Averages  |         | Heart Failure Incentive |         |         |         |         |         |        |
|---|---------|-------------------------|---------|---------|---------|---------|---------|--------|
|   |         | Yes                     |         |         |         |         |         |        |
|   |         | Year                    |         |         |         |         |         |        |
|   |         | 200405                  | 200506  | 200607  | 200708  | 200809  | 200910  | 201011 |
| GP Services   | 35.8    | 36.8                    | 36.1    | 37.7    | 34.2    | 34.7    | 35.7    |        |
| Specialist Services   | 24.6    | 24.4                    | 24.4    | 22.4    | 21.9    | 22.0    | 22.9    |        |
| Diag Fac Service  | 72.0    | 73.4                    | 71.6    | 72.6    | 72.0    | 72.7    | 72.1    |        |
| GP Specialist and Diag Fac Services                                 | 132.4   | 134.5                   | 132.1   | 132.7   | 128.1   | 129.4   | 130.8   |        |
| Hospital Days per 1000 Patients                                     | 14463.6 | 13612.3                 | 13181.2 | 11434.4 | 11486.5 | 11397.9 | 12229.0 |        |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 2011.7  | 2033.2                  | 1966.1  | 1821.0  | 1758.3  | 1769.5  | 1754.0  |        |
| Hospital Day Care Days per 1000 Patients                            | 433.5   | 454.8                   | 466.1   | 464.4   | 449.6   | 429.4   | 432.5   |        |
| Hospital Transfers per 1000 Patients                                | 136.4   | 160.6                   | 157.1   | 118.4   | 120.4   | 120.0   | 123.0   |        |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 1441.8  | 1417.8                  | 1342.9  | 1238.1  | 1188.3  | 1220.1  | 1198.5  |        |
| Readmission Within 7 days per 1000 net Admissions                   | 77.8    | 78.1                    | 81.0    | 75.1    | 71.7    | 74.5    | 72.4    |        |
| Readmission Within 15 days per 1000 net Admissions                  | 137.0   | 132.4                   | 134.6   | 131.6   | 121.2   | 126.5   | 125.2   |        |
| Readmission Within 30 days per 1000 net Admissions                  | 217.6   | 202.3                   | 198.6   | 199.9   | 186.9   | 200.5   | 192.2   |        |
| Age   | 77.2    | 77.9                    | 77.6    | 77.6    | 77.9    | 77.8    | 77.9    |        |
| Attachment to Practice  | 76.5    | 77.1                    | 75.5    | 77.8    | 76.7    | 76.2    | 75.2    |        |
| Patients  | 1,195   | 1,625                   | 2,152   | 3,301   | 3,521   | 3,875   | 4,358   |        |

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

**Table 13: Average Hospital Stays by Year for All Patients with Congestive Heart Failure Who were Admitted to Hospital (Excluding Day Care)**

All RUBs \*

| Averages   |         | Heart Failure Incentive |         |         |         |         |         |        |
|--|---------|-------------------------|---------|---------|---------|---------|---------|--------|
|  |         | No                      |         |         |         |         |         |        |
|  |         | Year                    |         |         |         |         |         |        |
|  |         | 200405                  | 200506  | 200607  | 200708  | 200809  | 200910  | 201011 |
| Patients with AC Stays   | 16,703  | 16,807                  | 16,030  | 15,271  | 15,708  | 16,218  | 16,728  |        |
| Total AC Admissions  | 30,049  | 29,986                  | 28,255  | 26,675  | 27,482  | 28,545  | 29,706  |        |
| Total AC Stays   | 27,168  | 27,136                  | 25,498  | 24,209  | 24,837  | 25,892  | 27,108  |        |
| Total AC Episodes  | 22,758  | 22,836                  | 21,408  | 20,406  | 20,906  | 21,692  | 22,591  |        |
| Total AC Days  | 230,648 | 237,750                 | 227,247 | 213,837 | 221,468 | 225,437 | 241,289 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.80    | 1.78                    | 1.76    | 1.75    | 1.75    | 1.76    | 1.78    |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.63    | 1.61                    | 1.59    | 1.59    | 1.58    | 1.60    | 1.62    |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.36    | 1.36                    | 1.34    | 1.34    | 1.33    | 1.34    | 1.35    |        |
| Average Length of stay per regular admission                       | 7.68    | 7.93                    | 8.04    | 8.02    | 8.06    | 7.90    | 8.12    |        |
| Average Length of stay per hospital stay                           | 8.49    | 8.76                    | 8.91    | 8.83    | 8.92    | 8.71    | 8.90    |        |
| Average Length of stay per hospital episode                        | 10.13   | 10.41                   | 10.62   | 10.48   | 10.59   | 10.39   | 10.68   |        |

All RUBs \*

| Averages   |        | Heart Failure Incentive |        |        |        |        |        |        |
|--|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |        | Yes                     |        |        |        |        |        |        |
|  |        | Year                    |        |        |        |        |        |        |
|  |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 2,023  | 2,639                   | 3,165  | 4,242  | 4,394  | 4,703  | 5,222  |        |
| Total AC Admissions  | 3,507  | 4,564                   | 5,492  | 7,310  | 7,520  | 8,252  | 9,018  |        |
| Total AC Stays   | 3,280  | 4,198                   | 5,066  | 6,821  | 6,962  | 7,635  | 8,345  |        |
| Total AC Episodes  | 2,724  | 3,554                   | 4,260  | 5,721  | 5,905  | 6,399  | 7,038  |        |
| Total AC Days  | 26,041 | 33,021                  | 41,427 | 51,694 | 54,929 | 59,677 | 70,228 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.73   | 1.73                    | 1.74   | 1.72   | 1.71   | 1.75   | 1.73   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.62   | 1.59                    | 1.60   | 1.61   | 1.58   | 1.62   | 1.60   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.35   | 1.35                    | 1.35   | 1.35   | 1.34   | 1.36   | 1.35   |        |
| Average Length of stay per regular admission                       | 7.43   | 7.24                    | 7.54   | 7.07   | 7.30   | 7.23   | 7.79   |        |
| Average Length of stay per hospital stay                           | 7.94   | 7.87                    | 8.18   | 7.58   | 7.89   | 7.82   | 8.42   |        |
| Average Length of stay per hospital episode                        | 9.56   | 9.29                    | 9.72   | 9.04   | 9.30   | 9.33   | 9.98   |        |

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

**Table 14: Average Hospital Stays by Year for All Patients with Congestive Heart Failure who were Admitted to Hospital (Excluding Day Care): RUB 3**

**Resource Utilization Band 3**

| Averages   |        | Heart Failure Incentive |        |        |        |        |        |        |
|--|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |        | No                      |        |        |        |        |        |        |
|  |        | Year                    |        |        |        |        |        |        |
|  |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 3,288  | 3,023                   | 2,817  | 2,367  | 2,477  | 2,401  | 2,443  |        |
| Total AC Admissions  | 4,202  | 3,786                   | 3,543  | 2,873  | 3,046  | 2,962  | 3,019  |        |
| Total AC Stays   | 4,039  | 3,658                   | 3,416  | 2,793  | 2,939  | 2,867  | 2,932  |        |
| Total AC Episodes  | 3,780  | 3,431                   | 3,190  | 2,633  | 2,760  | 2,677  | 2,736  |        |
| Total AC Days  | 21,407 | 20,002                  | 18,716 | 14,770 | 15,547 | 15,367 | 15,373 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.28   | 1.25                    | 1.26   | 1.21   | 1.23   | 1.23   | 1.24   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.23   | 1.21                    | 1.21   | 1.18   | 1.19   | 1.19   | 1.20   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.15   | 1.13                    | 1.13   | 1.11   | 1.11   | 1.11   | 1.12   |        |
| Average Length of stay per regular admission                       | 5.09   | 5.28                    | 5.28   | 5.14   | 5.10   | 5.19   | 5.09   |        |
| Average Length of stay per hospital stay                           | 5.30   | 5.47                    | 5.48   | 5.29   | 5.29   | 5.36   | 5.24   |        |
| Average Length of stay per hospital episode                        | 5.66   | 5.83                    | 5.87   | 5.61   | 5.63   | 5.74   | 5.62   |        |

**Resource Utilization Band 3**

| Averages   |       | Heart Failure Incentive |        |        |        |        |        |        |
|--|-------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |       | Yes                     |        |        |        |        |        |        |
|  |       | Year                    |        |        |        |        |        |        |
|  |       | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 388   | 495                     | 534    | 655    | 670    | 685    | 713    |        |
| Total AC Admissions  | 495   | 616                     | 670    | 810    | 831    | 864    | 874    |        |
| Total AC Stays   | 481   | 597                     | 650    | 786    | 809    | 844    | 858    |        |
| Total AC Episodes  | 442   | 562                     | 605    | 744    | 760    | 776    | 804    |        |
| Total AC Days  | 2,303 | 2,889                   | 3,515  | 3,876  | 3,857  | 3,901  | 4,361  |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.28  | 1.24                    | 1.25   | 1.24   | 1.24   | 1.26   | 1.23   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.24  | 1.21                    | 1.22   | 1.20   | 1.21   | 1.23   | 1.20   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.14  | 1.14                    | 1.13   | 1.14   | 1.13   | 1.13   | 1.13   |        |
| Average Length of stay per regular admission                       | 4.65  | 4.69                    | 5.25   | 4.79   | 4.64   | 4.52   | 4.99   |        |
| Average Length of stay per hospital stay                           | 4.79  | 4.84                    | 5.41   | 4.93   | 4.77   | 4.62   | 5.08   |        |
| Average Length of stay per hospital episode                        | 5.21  | 5.14                    | 5.81   | 5.21   | 5.08   | 5.03   | 5.42   |        |

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



**Table 15: Average Hospital Stays by Year for All Patients with Congestive Heart Failure who were Admitted to Hospital (Excluding Day Care): RUB 4**

**Resource Utilization Band 4**

| Averages   |        | Heart Failure Incentive |        |        |        |        |        |        |
|--|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |        | No                      |        |        |        |        |        |        |
|  |        | Year                    |        |        |        |        |        |        |
|  |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 5,686  | 5,730                   | 5,317  | 4,847  | 5,010  | 5,158  | 5,050  |        |
| Total AC Admissions  | 8,740  | 8,775                   | 7,948  | 7,178  | 7,333  | 7,662  | 7,419  |        |
| Total AC Stays   | 8,094  | 8,119                   | 7,370  | 6,689  | 6,849  | 7,103  | 6,979  |        |
| Total AC Episodes  | 7,117  | 7,189                   | 6,520  | 5,990  | 6,113  | 6,284  | 6,145  |        |
| Total AC Days  | 58,201 | 58,752                  | 53,593 | 46,768 | 48,160 | 48,658 | 47,898 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.54   | 1.53                    | 1.49   | 1.48   | 1.46   | 1.49   | 1.47   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.42   | 1.42                    | 1.39   | 1.38   | 1.37   | 1.38   | 1.38   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.25   | 1.25                    | 1.23   | 1.24   | 1.22   | 1.22   | 1.22   |        |
| Average Length of stay per regular admission                       | 6.66   | 6.70                    | 6.74   | 6.52   | 6.57   | 6.35   | 6.46   |        |
| Average Length of stay per hospital stay                           | 7.19   | 7.24                    | 7.27   | 6.99   | 7.03   | 6.85   | 6.86   |        |
| Average Length of stay per hospital episode                        | 8.18   | 8.17                    | 8.22   | 7.81   | 7.88   | 7.74   | 7.79   |        |

**Resource Utilization Band 4**

| Averages   |       | Heart Failure Incentive |        |        |        |        |        |        |
|--|-------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |       | Yes                     |        |        |        |        |        |        |
|  |       | Year                    |        |        |        |        |        |        |
|  |       | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 743   | 932                     | 1,086  | 1,378  | 1,422  | 1,515  | 1,633  |        |
| Total AC Admissions  | 1,126 | 1,383                   | 1,594  | 2,022  | 2,081  | 2,195  | 2,385  |        |
| Total AC Stays   | 1,076 | 1,297                   | 1,526  | 1,948  | 1,969  | 2,063  | 2,264  |        |
| Total AC Episodes  | 934   | 1,154                   | 1,339  | 1,707  | 1,743  | 1,843  | 2,015  |        |
| Total AC Days  | 6,972 | 8,751                   | 10,549 | 11,606 | 12,211 | 13,273 | 14,458 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 1.52  | 1.48                    | 1.47   | 1.47   | 1.46   | 1.45   | 1.46   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.45  | 1.39                    | 1.41   | 1.41   | 1.38   | 1.36   | 1.39   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.26  | 1.24                    | 1.23   | 1.24   | 1.23   | 1.22   | 1.23   |        |
| Average Length of stay per regular admission                       | 6.19  | 6.33                    | 6.62   | 5.74   | 5.87   | 6.05   | 6.06   |        |
| Average Length of stay per hospital stay                           | 6.48  | 6.75                    | 6.91   | 5.96   | 6.20   | 6.43   | 6.39   |        |
| Average Length of stay per hospital episode                        | 7.46  | 7.58                    | 7.88   | 6.80   | 7.01   | 7.20   | 7.18   |        |

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

**Table 16: Average Hospital Stays by Year for All Patients with Congestive Heart Failure who were Admitted to Hospital (Excluding Day Care): RUB 5**

**Resource Utilization Band 5**

| Averages   |         | Heart Failure Incentive |         |         |         |         |         |        |
|--|---------|-------------------------|---------|---------|---------|---------|---------|--------|
|  |         | No                      |         |         |         |         |         |        |
|  |         | Year                    |         |         |         |         |         |        |
|  |         | 200405                  | 200506  | 200607  | 200708  | 200809  | 200910  | 201011 |
| Patients with AC Stays   | 7,729   | 8,054                   | 7,896   | 8,057   | 8,221   | 8,659   | 9,235   |        |
| Total AC Admissions  | 17,107  | 17,425                  | 16,764  | 16,624  | 17,103  | 17,921  | 19,268  |        |
| Total AC Stays   | 15,035  | 15,359                  | 14,712  | 14,727  | 15,049  | 15,922  | 17,197  |        |
| Total AC Episodes  | 11,861  | 12,216                  | 11,698  | 11,783  | 12,033  | 12,731  | 13,710  |        |
| Total AC Days  | 151,040 | 158,996                 | 154,938 | 152,299 | 157,761 | 161,412 | 178,018 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 2.21    | 2.16                    | 2.12    | 2.06    | 2.08    | 2.07    | 2.09    |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.95    | 1.91                    | 1.86    | 1.83    | 1.83    | 1.84    | 1.86    |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.53    | 1.52                    | 1.48    | 1.46    | 1.46    | 1.47    | 1.48    |        |
| Average Length of stay per regular admission                       | 8.83    | 9.12                    | 9.24    | 9.16    | 9.22    | 9.01    | 9.24    |        |
| Average Length of stay per hospital stay                           | 10.05   | 10.35                   | 10.53   | 10.34   | 10.48   | 10.14   | 10.35   |        |
| Average Length of stay per hospital episode                        | 12.73   | 13.02                   | 13.24   | 12.93   | 13.11   | 12.68   | 12.98   |        |

**Resource Utilization Band 5**

| Averages   |        | Heart Failure Incentive |        |        |        |        |        |        |
|--|--------|-------------------------|--------|--------|--------|--------|--------|--------|
|  |        | Yes                     |        |        |        |        |        |        |
|  |        | Year                    |        |        |        |        |        |        |
|  |        | 200405                  | 200506 | 200607 | 200708 | 200809 | 200910 | 201011 |
| Patients with AC Stays   | 892    | 1,212                   | 1,545  | 2,209  | 2,302  | 2,503  | 2,876  |        |
| Total AC Admissions  | 1,886  | 2,565                   | 3,228  | 4,478  | 4,608  | 5,193  | 5,759  |        |
| Total AC Stays   | 1,723  | 2,304                   | 2,890  | 4,087  | 4,184  | 4,728  | 5,223  |        |
| Total AC Episodes  | 1,348  | 1,838                   | 2,316  | 3,270  | 3,402  | 3,780  | 4,219  |        |
| Total AC Days  | 16,766 | 21,381                  | 27,363 | 36,212 | 38,861 | 42,503 | 51,409 |        |
| Average Acute Care Admissions (Admissions Excluding Day Care)      | 2.11   | 2.12                    | 2.09   | 2.03   | 2.00   | 2.07   | 2.00   |        |
| Average Acute Care Admissions Excluding Transfers                  | 1.93   | 1.90                    | 1.87   | 1.85   | 1.82   | 1.89   | 1.82   |        |
| Average Acute Care Episodes (Readmissions Combined with Admission) | 1.51   | 1.52                    | 1.50   | 1.48   | 1.48   | 1.51   | 1.47   |        |
| Average Length of stay per regular admission                       | 8.89   | 8.34                    | 8.48   | 8.09   | 8.43   | 8.18   | 8.93   |        |
| Average Length of stay per hospital stay                           | 9.73   | 9.28                    | 9.47   | 8.86   | 9.29   | 8.99   | 9.84   |        |
| Average Length of stay per hospital episode                        | 12.44  | 11.63                   | 11.81  | 11.07  | 11.42  | 11.24  | 12.19  |        |

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

## 5. ADJUSTED COST UTILIZATION AND HOSPITAL DATA

To summarize, Tables 17 and 18 provide basic, unadjusted data on numbers of patients and costs by age, gender and attachment to practice. As can be seen in Table 18, the average, annual unadjusted costs for patients who did not, and did, receive incentive based care were \$10,290 and \$9,550, respectively.

When one adjusts for differences in the distribution of age, gender and RUB levels, annual costs are still somewhat lower for patients who received incentive based care, compared to those who did not. Table 19 presents data on comparative costs by RUB level. For RUB 3, annual costs were higher for patients who received incentive based care. For RUBs 4 and 5 the reverse is true, as the annual costs for patients who received incentive based care was lower than for patients who did not. Essentially, all of the savings are in hospital costs.

Table 20 shows the overall comparative costs for RUBs 3, 4 and 5 combined. The average, annual, adjusted cost for patients who did not receive incentive based care was \$10,260, while it was \$9,649 for those who did receive incentive based care. However, this group also had a higher percentage of attachment to practice. Because there is an inverse relationship between attachment to practice and costs, it may also be appropriate to adjust for attachment levels which we do below.

In terms of hospital utilization, data by RUB level is presented in Table 21 and, overall, in Table 22. These data are adjusted for age, gender and RUB level and contain much of the same information contained in Tables 9 to 16. While there are some differences, the overall results of shorter lengths of stay, number of hospital days per 1,000, for patients who received incentive based care continued to hold.

With regard to adjustments by age, gender, RUB and attachment level, overall costs were lower for patients who received incentive based care. Tables 23 and 24 present comparative, average, annual, adjusted, total costs by RUB and shows that total costs were higher for patients who received incentive based care for RUBs 3 and 4. However, the annual costs for patients who received incentive based care were \$10,031 compared to \$10,127 for those who did not. Table 25 indicates that in terms of hospital related figures, those who received incentive based care still had shorter lengths of stay and fewer hospital days than patients who did not receive incentive based care.

Our analysis is based on a selected sample. There are some patients who are outside our selection parameters who also receive incentive based care. Thus, the total cost of chf incentives is greater than the total cost of incentives in our sample. However, cost avoidance data are limited to our sample. Thus, in order to obtain a bottom line estimate of the cost implications of incentives we include all costs for incentives and compare these costs to the costs potentially avoided due to the use of incentive payments.

The bottom line appears to be that the chf incentive resulted in a cost avoidance of \$1.2 million in fiscal 2010/11 (see Table 26). The overall costs of the incentive payments were fully

recovered through efficiencies, and there was an additional cost avoidance, over and above the costs of the incentives, of \$1.2 million.

**Table 17: Number of Patients with Congestive Heart Failure Who Did, and Did Not, Receive Incentive Based Care (April 2010 to March 2011)**

| Averages for Congestive Heart Failure | 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>                            | 48,583             | 21,020                    | 14,699 | 12,864 | 16,834             | 7,018                     | 5,458 | 4,358 |
| <b>Client Age Group</b>               |                    |                           |        |        |                    |                           |       |       |
| <b>0 - 44</b>                         | 1,205              | 605                       | 403    | 197    | 181                | 86                        | 60    | 35    |
| <b>45 - 59</b>                        | 4,817              | 2,374                     | 1,341  | 1,102  | 1,220              | 577                       | 376   | 267   |
| <b>60 - 69</b>                        | 9,063              | 4,327                     | 2,599  | 2,137  | 2,747              | 1,301                     | 870   | 576   |
| <b>70 - 79</b>                        | 14,013             | 6,090                     | 4,286  | 3,637  | 4,788              | 2,025                     | 1,499 | 1,264 |
| <b>80 and over</b>                    | 19,485             | 7,624                     | 6,070  | 5,791  | 7,898              | 3,029                     | 2,653 | 2,216 |
| <b>Gender</b>                         |                    |                           |        |        |                    |                           |       |       |
| <b>Females</b>                        | 23,133             | 10,243                    | 6,992  | 5,898  | 7,318              | 3,118                     | 2,440 | 1,760 |
| <b>Males</b>                          | 25,450             | 10,777                    | 7,707  | 6,966  | 9,516              | 3,900                     | 3,018 | 2,598 |
| <b>Attachment to Practice</b>         |                    |                           |        |        |                    |                           |       |       |
| <b>1. Less than 40%</b>               | 1,937              | 395                       | 502    | 1,040  | 332                | 50                        | 96    | 186   |
| <b>2. 40% - 59%</b>                   | 7,465              | 2,187                     | 2,245  | 3,033  | 1,918              | 471                       | 591   | 856   |
| <b>3. 60% - 79%</b>                   | 11,017             | 3,885                     | 3,455  | 3,677  | 3,417              | 1,050                     | 1,147 | 1,220 |
| <b>4. 80% - 89%</b>                   | 8,961              | 3,919                     | 2,808  | 2,234  | 3,177              | 1,261                     | 1,074 | 842   |
| <b>5. 90% or More</b>                 | 19,203             | 10,634                    | 5,689  | 2,880  | 7,990              | 4,186                     | 2,550 | 1,254 |

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

**Table 18: Total Cost of Congestive Heart Failure for Patients Who Did, and Did Not, Receive Incentive Based Care (April 2010 to March 2011)**

| Averages for Congestive Heart Failure | Incentive                 |       |        |        |                           |        |        |        |
|---------------------------------------|---------------------------|-------|--------|--------|---------------------------|--------|--------|--------|
|                                       | No                        |       |        |        | Yes                       |        |        |        |
|                                       | Total Costs               |       |        |        | Total Costs               |        |        |        |
|                                       | Resource Utilization Band |       |        |        | Resource Utilization Band |        |        |        |
|                                       | All                       | 3     | 4      | 5      | All                       | 3      | 4      | 5      |
| <b>All</b>                            | 10,290                    | 3,864 | 8,379  | 22,972 | 9,550                     | 4,093  | 7,928  | 20,370 |
| <b>Client Age Group</b>               |                           |       |        |        |                           |        |        |        |
| <b>0 - 44</b>                         | 10,518                    | 3,371 | 11,527 | 30,402 | 13,183                    | 2,542  | 19,991 | 27,658 |
| <b>45 - 59</b>                        | 9,832                     | 3,256 | 8,049  | 26,168 | 8,831                     | 3,467  | 6,827  | 23,248 |
| <b>60 - 69</b>                        | 10,053                    | 3,577 | 8,255  | 25,353 | 8,904                     | 3,873  | 7,730  | 22,042 |
| <b>70 - 79</b>                        | 10,308                    | 4,064 | 8,434  | 22,971 | 9,955                     | 4,129  | 8,020  | 21,582 |
| <b>80 and over</b>                    | 10,486                    | 4,097 | 8,258  | 21,234 | 9,558                     | 4,327  | 7,825  | 18,782 |
| <b>Gender</b>                         |                           |       |        |        |                           |        |        |        |
| <b>Females</b>                        | 10,324                    | 4,066 | 8,737  | 23,072 | 9,349                     | 4,290  | 8,222  | 19,875 |
| <b>Males</b>                          | 10,259                    | 3,673 | 8,054  | 22,888 | 9,705                     | 3,935  | 7,691  | 20,705 |
| <b>Attachment to Practice</b>         |                           |       |        |        |                           |        |        |        |
| <b>1. Less than 40%</b>               | 24,874                    | 6,568 | 14,279 | 36,940 | 27,544                    | 12,675 | 17,207 | 36,876 |
| <b>2. 40% - 59%</b>                   | 16,795                    | 5,143 | 11,987 | 28,756 | 17,957                    | 5,679  | 12,503 | 28,479 |
| <b>3. 60% - 79%</b>                   | 12,744                    | 4,538 | 9,860  | 24,126 | 12,770                    | 4,912  | 9,910  | 22,222 |
| <b>4. 80% - 89%</b>                   | 8,938                     | 3,861 | 7,884  | 19,169 | 9,143                     | 4,268  | 7,976  | 17,932 |
| <b>5. 90% or More</b>                 | 5,513                     | 3,256 | 5,781  | 13,316 | 5,570                     | 3,554  | 5,608  | 12,221 |

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

**Table 19: Annual Costs for Congestive Heart Failure Adjusted for Gender and Age Group within RUB (April 2010 to March 2011)**

|   | Resource Utilization Band |           |                         |           |                         |           |
|---|---------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
|   | 3                         |           | 4                       |           | 5                       |           |
|   | Heart Failure Incentive   |           | Heart Failure Incentive |           | Heart Failure Incentive |           |
|   | No Incentive              | Incentive | No Incentive            | Incentive | No Incentive            | Incentive |
| <b>GP Amount</b>                                    | 609                       | 873       | 913                     | 1,140     | 1,483                   | 1,698     |
| <b>Specialist Amount</b>                            | 404                       | 381       | 880                     | 792       | 2,184                   | 1,836     |
| <b>Diag Fac Amount</b>                              | 490                       | 546       | 738                     | 768       | 1,049                   | 1,057     |
| <b>GP Specialist and Diag Fac Amounts</b>           | 1,504                     | 1,800     | 2,531                   | 2,699     | 4,716                   | 4,591     |
| <b>Hospital Costs</b>                               | 1,168                     | 1,006     | 4,287                   | 3,638     | 16,214                  | 13,977    |
| <b>Pharmacy Costs</b>                               | 1,202                     | 1,241     | 1,541                   | 1,796     | 1,954                   | 1,975     |
| <b>Total Cost</b>                                   | 3,873                     | 4,048     | 8,358                   | 8,133     | 22,884                  | 20,543    |
| <b>Attachment to Practice</b>                       | 84.29                     | 87.71     | 79.25                   | 82.99     | 70.81                   | 75.05     |
| <b>Attachment to Practice, Excluding Incentives</b> | 83.22                     | 85.21     | 78.15                   | 80.67     | 69.74                   | 72.83     |

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

**Table 20: Annual Costs for Congestive Heart Failure Adjusted for RUB, Gender, and Age Group (April 2010 to March 2011)**

|   | <b>Heart Failure Incentive</b> |                  |
|---|--------------------------------|------------------|
|   | <b>No Incentive</b>            | <b>Incentive</b> |
| <b>GP Amount</b>                                    | 933                            | 1,172            |
| <b>Specialist Amount</b>                            | 1,019                          | 891              |
| <b>Diag Fac Amount</b>                              | 714                            | 749              |
| <b>GP Specialist and Diag Fac Amounts</b>           | 2,666                          | 2,812            |
| <b>Hospital Costs</b>                               | 6,090                          | 5,232            |
| <b>Pharmacy Costs</b>                               | 1,504                          | 1,606            |
| <b>Total Cost</b>                                   | 10,260                         | 9,649            |
| <b>Attachment to Practice</b>                       | 79.19                          | 82.92            |
| <b>Attachment to Practice, Excluding Incentives</b> | 78.11                          | 80.55            |

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

**Table 21: Service Rates for Congestive Heart Failure Adjusted for Gender and Age Group within RUB (April 2010 to March 2011)**

|   | Resource Utilization Band |           |                         |           |                         |           |
|---|---------------------------|-----------|-------------------------|-----------|-------------------------|-----------|
|   | 3                         |           | 4                       |           | 5                       |           |
|   | Heart Failure Incentive   |           | Heart Failure Incentive |           | Heart Failure Incentive |           |
|   | No Incentive              | Incentive | No Incentive            | Incentive | No Incentive            | Incentive |
| GP Services   | 14.2                      | 16.3      | 20.9                    | 22.7      | 33.6                    | 35.6      |
| Specialist Services   | 5.3                       | 5.1       | 11.3                    | 10.3      | 27.4                    | 23.3      |
| Diag Fac Service  | 37.0                      | 42.1      | 51.5                    | 54.6      | 71.1                    | 73.0      |
| GP Specialist and Diag Fac Services                                 | 56.5                      | 63.5      | 83.7                    | 87.6      | 132.1                   | 131.8     |
| Hospital Days per 1000 Patients                                     | 932.2                     | 787.2     | 3,602.4                 | 2,915.3   | 14,325.8                | 12,203.8  |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 338.6                     | 310.2     | 841.0                   | 756.2     | 1,994.6                 | 1,765.6   |
| Hospital Day Care Days per 1000 Patients                            | 194.2                     | 188.7     | 337.2                   | 319.0     | 501.6                   | 435.3     |
| Hospital Transfers per 1000 Patients                                | 4.1                       | 2.2       | 29.6                    | 22.7      | 159.7                   | 125.7     |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 140.3                     | 119.4     | 474.1                   | 414.5     | 1,333.3                 | 1,204.7   |
| Readmission Within 7 days per 1000 net Admissions                   | 29.9                      | 36.4      | 51.7                    | 44.3      | 82.0                    | 72.2      |
| Readmission Within 15 days per 1000 net Admissions                  | 44.8                      | 52.3      | 84.1                    | 74.7      | 137.2                   | 125.6     |
| Readmission Within 30 days per 1000 net Admissions                  | 67.1                      | 65.4      | 119.1                   | 111.4     | 201.9                   | 193.5     |
| Average Length of stay per regular admission                        | 5.1                       | 4.9       | 6.5                     | 5.9       | 9.3                     | 8.8       |
| Average Length of stay per hospital stay                            | 5.3                       | 5.0       | 6.9                     | 6.3       | 10.4                    | 9.8       |
| Average Length of stay per hospital stay episode                    | 5.6                       | 5.4       | 7.8                     | 7.0       | 13.0                    | 12.1      |

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



**Table 22: Service Rates for Congestive Heart Failure Adjusted for RUB, Gender, and Age Group (April 2010 to March 2011)**

|  | Heart Failure Incentive |           |
|--|-------------------------|-----------|
|  | No Incentive            | Incentive |
| Attachment to Practice   | 79.2                    | 82.9      |
| Attachment to Practice, Excluding Incentives                       | 78.1                    | 80.5      |
| GP Services  | 21.4                    | 23.3      |
| Specialist Services  | 13.0                    | 11.5      |
| Diag Fac Service   | 50.4                    | 54.1      |
| GP Specialist and Diag Fac Services                                | 84.8                    | 88.9      |
| Hospital Days per 1000 Patients                                    | 5,281.1                 | 4,448.5   |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients  | 929.4                   | 830.8     |
| Hospital Day Care Days per 1000 Patients                           | 319.2                   | 293.7     |
| Hospital Transfers per 1000 Patients                               | 52.9                    | 41.0      |
| Net Admissions per 1000 Patients (excluding Tranfers and Day Care) | 557.2                   | 496.0     |
| Readmission Within 7 days per 1000 net Admissions                  | 68.5                    | 61.3      |
| Readmission Within 15 days per 1000 net Admissions                 | 113.3                   | 104.9     |
| Readmission Within 30 days per 1000 net Admissions                 | 165.7                   | 159.2     |
| Average Length of stay per regular admission                       | 8.1                     | 7.7       |
| Average Length of stay per hospital stay                           | 8.9                     | 8.4       |
| Average Length of stay per hospital stay episode                   | 10.7                    | 10.0      |

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

**Table 23: Annual Costs for Congestive Heart Failure Adjusted by Gender, Age Group and Attachment within RUB (April 2010 to March 2011)**

| Average Total Costs       |  |  | Heart Failure Incentive |           |
|---------------------------|--|--|-------------------------|-----------|
|                           |  |  | No Incentive            | Incentive |
| Resource Utilization Band |  |  |                         |           |
| 3                         |  |  | 3,836                   | 4,170     |
| 4                         |  |  | 8,241                   | 8,362     |
| 5                         |  |  | 22,577                  | 21,528    |

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

**Table 24: Annual Costs for Congestive Heart Failure Adjusted by RUB, Attachment, Gender, and Age Group (April 2010 to March 2011)**

|   | Heart Failure Incentive |           |
|---|-------------------------|-----------|
|   | No Incentive            | Incentive |
| <b>GP Amount</b>                          | 927                     | 1,192     |
| <b>Specialist Amount</b>                  | 1,008                   | 924       |
| <b>Diag Fac Amount</b>                    | 713                     | 753       |
| <b>GP Specialist and Diag Fac Amounts</b> | 2,648                   | 2,869     |
| <b>Hospital Costs</b>                     | 5,976                   | 5,579     |
| <b>Pharmacy Costs</b>                     | 1,503                   | 1,583     |
| <b>Average Total Cost</b>                 | 10,127                  | 10,031    |

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

**Table 25: Service Rates for Congestive Heart Failure Adjusted by RUB, Attachment, Gender, and Age Group (April 2010 to March 2011)**

|   | Heart Failure Incentive |           |
|---|-------------------------|-----------|
|   | No Incentive            | Incentive |
| Attachment to Practice  | 80.0                    | 80.5      |
| GP Services   | 21.2                    | 23.8      |
| Specialist Services   | 12.9                    | 11.9      |
| Diag Fac Service  | 50.4                    | 54.2      |
| GP Specialist and Diag Fac Services                                 | 84.5                    | 89.8      |
| Hospital Days per 1000 Patients                                     | 5,177.7                 | 4,759.2   |
| Hospital Admissions Incl Transfers and Day Care per 1000 Patients   | 915.3                   | 870.4     |
| Hospital Day Care Days per 1000 Patients                            | 317.6                   | 299.1     |
| Hospital Transfers per 1000 Patients                                | 51.4                    | 45.3      |
| Net Admissions per 1000 Patients (excluding Transfers and Day Care) | 546.2                   | 525.9     |
| Readmission Within 7 days per 1000 net Admissions                   | 68.0                    | 62.5      |
| Readmission Within 15 days per 1000 net Admissions                  | 112.5                   | 107.3     |
| Readmission Within 30 days per 1000 net Admissions                  | 164.6                   | 163.1     |
| Average Length of stay per regular admission                        | 8.1                     | 7.8       |
| Average Length of stay per hospital stay                            | 8.9                     | 8.5       |
| Average Length of stay per hospital stay episode                    | 10.6                    | 10.1      |

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

**Table 26: Summary of Congestive Heart Failure Incentive Cost Avoidance Adjusted for RUB, Attachment, Gender and Age Group (April 2010 to March 2011)**

|  |            |
|--|------------|
| <b>Total Cost Per Person With Incentives</b>                                   | 10,031     |
| <b>Total Cost Per Person With Incentives Excluding Incentive Amount(\$125)</b> | 9,906      |
| <b>Total Cost Per Person Without Incentives</b>                                | 10,127     |
| <b>Savings/Cost Per Person With Incentives Excluding Incentive Amount</b>      | 221        |
| <b>Total Dollar Savings/Cost Using Standardized Rates Excluding Incentives</b> | 3,716,020  |
| <b>Total Cost of Congestive Heart Failure Incentives</b>                       | -2,510,250 |
| <b>Net Total Dollar Savings/Costs</b>  | 1,205,770  |

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

## **6. DISCUSSION**

As noted in the report on diabetes, there is now more complexity in terms of patients who did, and did not, receive incentive based care in regard to additional incentive payments for other conditions. We were able to conduct an analysis for people who only had diabetes in that report. Almost all CHF patients are also complex care patients, thus a parallel analysis of CHF patients only was not possible for this report.