



## Hospital Funding Policies: Update on Hip and Knee Replacements

BCHeaPR Study Data Bulletin #14 (March 2013)

### Hip and knee replacement surgery

In April 2010, an activity-based funding (ABF) program was initiated in BC, under the direction of the Health Services Purchasing Organization (HSPO) and funded by the BC Ministry of Health. One aspect of the program is to create financial incentives for hospitals to operate more efficiently and reduce the incentives for restricting services to meet budget targets. However, hip and knee replacement surgeries have a longer history with ABF in BC. As a result of the 2004 First Ministers' Accord, BC allocated an additional \$16.7 million in 2004, and a further \$60.5 million in 2006, for a number of hip and knee related initiatives (1).

The theory is that changes in funding policies for hip and knee replacement surgeries will increase the number of surgeries, decrease their average length of stay and decrease wait lists for elective hip and knee replacements.

There is some evidence to back up this theory. ABF incentives are associated with a reduction in hospitals' average lengths of stay (ALOS) (2–5). Research from Finland suggests that changing the method of funding hospitals to ABF is associated with shortened length of stays for hip and knee replacements by 0.49 days and 0.55 days, respectively (6). These findings also suggest that, keeping the number of beds constant, these changes in ALOS would result in an increase in the number of surgeries in Finland by 400 annually (6).

### What is this research about?

The CIHR-funded *BC Hospitals: examination and assessment of Payment Reform (BCHeaPR)* study examines the impact of activity-based funding on acute care hospitals and related services in BC. Over time, the study team will release analyses on the effects of the change in funding policies. Check [www.healthcarefunding.ca](http://www.healthcarefunding.ca) for updates and policy implications.

### Impact of the ABF incentive

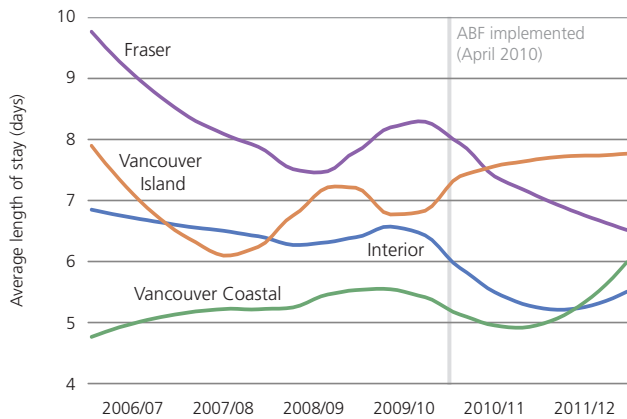
#### Length of stay

As illustrated in Figure 1, average length of stay for hip replacements has been trending upward in all health authorities except Fraser Health (FH). Both Vancouver Coastal Health (VCH) and Interior Health (IH) have seen increases in ALOS after the introduction of ABF. Vancouver Island Health Authority (VIHA) has seen a moderate but extended increase in ALOS since 2009.

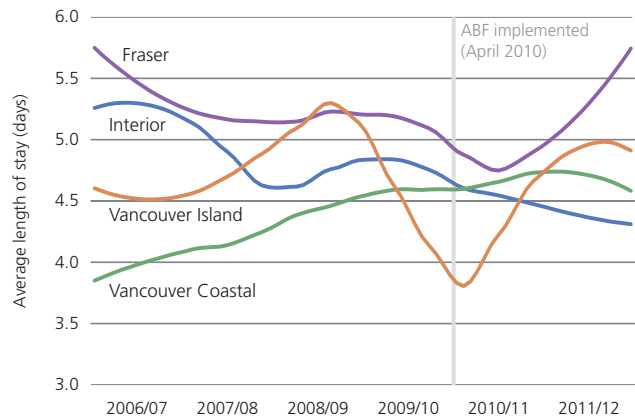
Figure 2 depicts the average length of stay for knee replacements. The average has been steadily decreasing in IH since 2009. VIHA saw a steep decline in ALOS for knee replacements until the introduction of ABF, at which point ALOS increased sharply before leveling off. VCH has seen moderate decreases in length of stay since 2010, seemingly aligned with the implementation of ABF. ALOS for FH has increased dramatically since shortly after the introduction of ABF.

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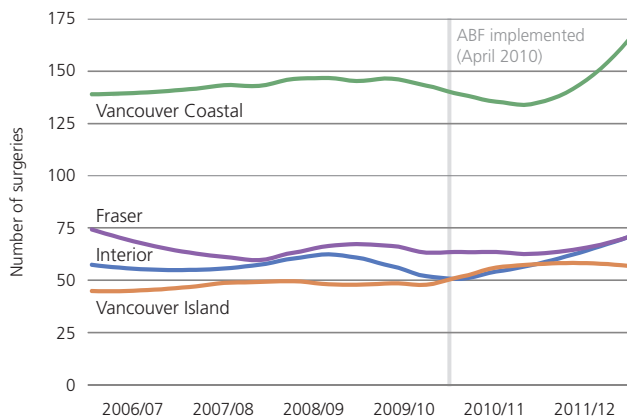
**Figure 1: Average length of stay for hip replacement, 2006/07 to 2011/12, for hospitals beginning activity-based funding in April 2010, by health authority**



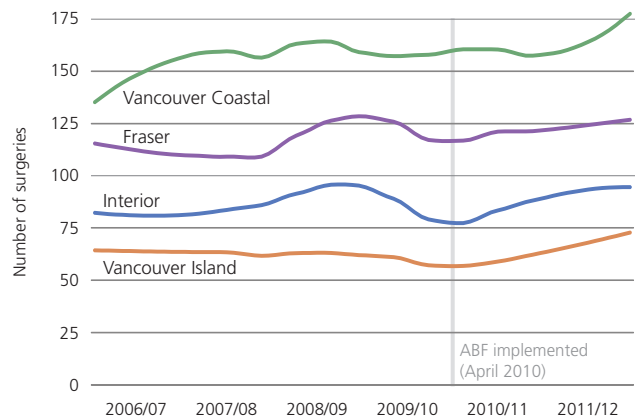
**Figure 2: Average length of stay for knee replacement, 2006/07 to 2011/12, for hospitals beginning activity-based funding in April 2010, by health authority**



**Figure 3: Number of hip replacement surgeries, 2006/07 to 2011/12, for hospitals beginning activity-based funding in April 2010, by health authority**



**Figure 4: Number of knee replacement surgeries, 2006/07 to 2011/12, for hospitals beginning activity-based funding in April 2010, by health authority**



**Volume**

Figure 3 illustrates the volume of hip replacement surgeries from 2006/07 to 2011/12. For the most part, the number of hip replacement surgeries in BC has increased since the introduction of ABF. There has been a slight decrease in VCH in 2009, followed by a sharp increase. The remaining health authorities have experienced slight increases, except for VIHA which has seen a small decline.

Figure 4 illustrates the volume of knee replacement surgeries from 2006/07 to 2011/12. The volume of knee replacements has also increased since the introduction of ABF. Again, the largest increase is seen in VCH, with all health authorities showing increases since late 2010.

**Discussion**

Volume is generally increasing in BC for hip and knee surgeries; however, length of stay is generally also increasing for these same surgeries in BC. Whether these improvements can be attributed to the implementation of ABF policies in the province is difficult to ascertain due to the different policies enacted for these procedures. In addition, the change in the number of hospital beds over this period is not known and may effect the interpretation of these results.

Increases in the volume of hip and knee replacement surgeries, although small, do appear to align with the

implementation of ABF. However, it is too early to determine if this trend will be sustained. Readers should be cautious in concluding too much from the results reported here. Length of stay, on the other hand, does not appear to be declining with the introduction of ABF.

As these are important indicators of the effectiveness of ABF's ability to change hospitals' behavior and respond to financial incentives, these statistics will be monitored over time and reported periodically.

### Technical Notes

The data source is the Discharge Abstract Database (DAD). The study population covers BC residents and non BC residents who received health care services in BC. ALOS included both the Acute Care Days (Ar\_Days) and the Alternate Level of Care Days (ALL Days) in hospital.

All hospitals that began ABF in 2010 are included except the sole hospital in Northern Health Authority.

The cases of hip replacement were selected by intervention codes 1VA53LAPN and 1VA53PNPN; the cases of knee replacement were selected by intervention codes 1VG53 based on the Canadian Classification of Health Interventions (CCI) 2010.

$ALOS = \frac{\text{total number of days in hospital in a period}}{\text{total number of cases in the same period}}$

### References

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