



## Hospital Funding Policies: Orthopedic Inpatient Volume and RIW

BCHeaPR Study Data Bulletin #22 (November 2013)

In April 2010, an activity-based funding (ABF) program was launched in BC, under the direction of the Health Services Purchasing Organization (HSPO). One motivation of the initiative was to create financial incentives for hospitals to reduce the incentive to restrict services in order to meet budget targets.

The experience of other countries demonstrate that, using ABF, the volume of hospital care is expected to increase (1–3). In this analysis, we examine the volume of orthopedic inpatient cases over the study period 2006/07 to 2012/13. We present counts of orthopedic inpatient cases, but because the complexity of cases can vary greatly over time and geography, we also adjust these cases using resource intensity weights (RIWs) (developed by the Canadian Institute of Health Information) and present the average orthopedic inpatient RIW and the total RIW for orthopedic inpatients.

Weighting inpatient orthopedic activity with RIW adjusts for the intensity and costliness of the patients treated and provides a picture of the total resources used by inpatient orthopedic cases. Using the average RIW per case can reveal if health authorities (HAs) are operating on more complex patients.

### Impact of the Incentive

Figure 1 shows the number of orthopedic inpatient surgeries in BC HAs from 2006/07 to 2012/13. There has been a

### What is this research about?

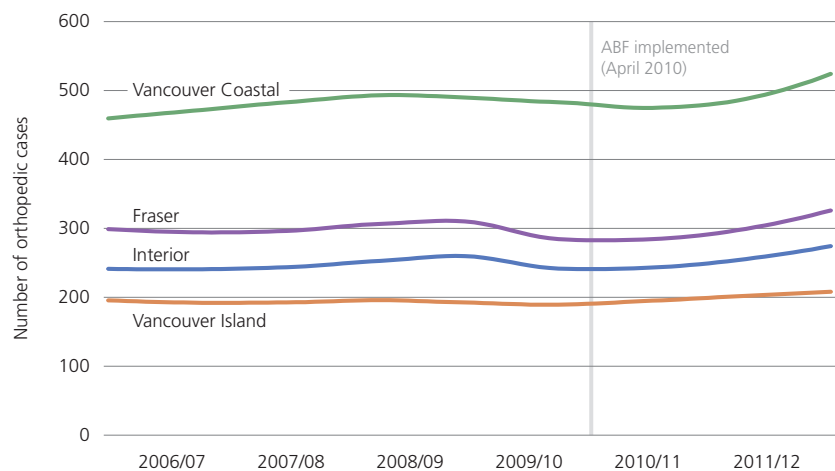
The CIHR-funded *BC Hospitals: examination and assessment of Payment Reform (BCHeaPR)* study examines the impact of activity-based funding on acute care hospitals and related services in BC. Over time, the study team will release analyses on the effects of the change in funding policies. Check [www.healthcarefunding.ca](http://www.healthcarefunding.ca)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

small increase in inpatient orthopedic surgeries since the introduction of ABF in all HAs.

Vancouver Coastal Health (VCH) performs significantly more orthopedic surgeries than Fraser Health (FH), Interior Health (IH) or Vancouver Island Health (VIH).

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Figure 1: Number of orthopedic cases, 2006/07 to 2012/13, for hospitals beginning ABF in April 2010, by health authority



The number of surgeries performed has increased by 14% over the study period in VCH, 9% in FH, 13.8% in IH and 6.7% in VIH.

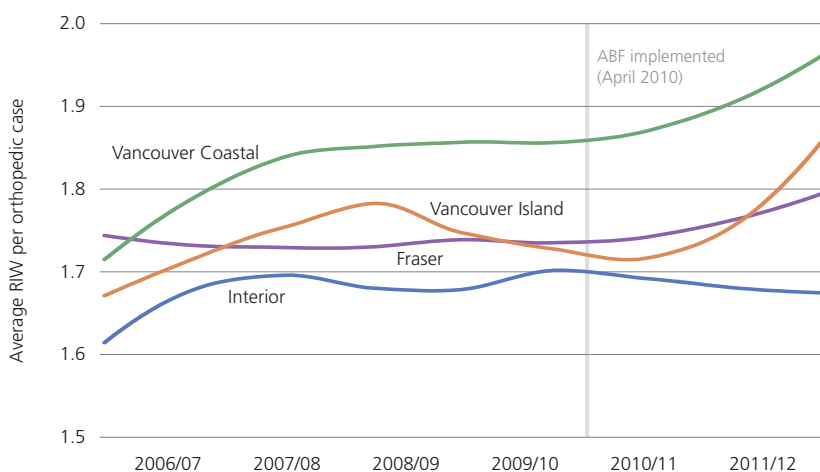
Figure 2 shows the average RIW for inpatient orthopedic surgery per patient by health authority for 2006/07 to 2011/12. These values represent the expected intensity of care provided by the hospital for a patient's stay; a higher average RIW reflects treatment of more complex patients.

Average RIWs have increased in some HAs over the study period, but changes in RIW seem to be a longer term trend and do not appear to coincide with the introduction of ABF. The possible exception may be VCH, which has seen an increase in average RIW per orthopedic case from 1.86 when ABF was introduced to 1.96 for the most recent period. RIWs in FH increased from 1.74 when ABF was introduced to 1.8, and from 1.72 to 1.86 in VIH. RIW per patient has decreased in IH from 1.7 when ABF was introduced to 1.67.

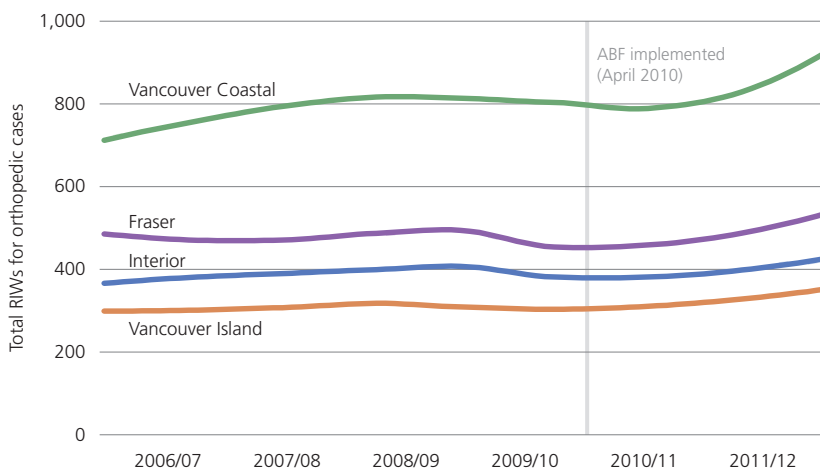
Figure 3 shows the total RIW for surgical orthopedic patients by HA for 2006/07 to 2011/12. Total RIW is much higher in VCH than other HAs, since VCH has higher volume and higher average RIW than other HAs.

The total RIW for each HA was stable in the years leading up to the introduction of ABF. After ABF, from 2010/11 to 2011/12, total RIW increased from 377.3 when ABF was introduced to 424 in IH, from 450.6 to 532.8 in FH, 302.9 to 350 in VIH and 793.5 to 922.6 in VCH.

**Figure 2: Average RIW per orthopedic case, 2006/07 to 2011/12, for hospitals beginning ABF in April 2010, by health authority**



**Figure 3: Total RIW for orthopedic patients, 2006/07 to 2011/12, for hospitals beginning ABF in April 2010, by health authority**



## Conclusion

To date, the univariate analysis of utilization data does not support an association between the introduction of ABF and a change in volume of inpatient orthopedic surgery across HAs. In BC, ABF was introduced with a budget cap, which may have impacted the volume incentive.

Tracking the impact of funding reforms on orthopedic procedures in BC is complicated by a number of factors. Funding for orthopedic procedures in BC has been

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conducted under some form of ABF since before the HSPO ABF program was introduced. Orthopedic procedures were excluded from the HSPO program for the first year. ABF was not the only funding method used to drive increases in the amount of orthopedic procedures during this study period. Federal wait time money has also been available to increase access to joint replacement surgery (4). Despite the funding for orthopedic procedures, according to CIHI, wait times for hip and knee replacement have increased from 2009 to 2012 (5). In 2009 85% of patients had hip replacement surgery within the 182 day benchmark and 77% of patients had knee replacement surgery; by 2012 those numbers fell to 73% and 65% respectively (5). It is not possible, given the current data, for us to disentangle the impact of ABF from the impact of federal funding.

Overall, since the introduction of ABF, BC has observed some increase in the total RIW for orthopedic surgery in all HAs.

### Technical Notes

Data source: the Discharge Abstract Database (DAD).

The study population included BC residents as well as non-residents who received BC health care services. Only hospitals included in HSPO's ABF program are included.

The analysis covers the surgical activities for inpatients. Orthopedic patients were identified by CMG codes 300, 303, 304, 305, 306, 307, 308, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 329, 330, 331, 332, 333, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 348 and 349.

### References

1. O'Reilly J, Busse R, Häkkinen U, Or Z, Street A, Wiley M. *Paying for hospital care: the experience with implementing activity-based funding in five European countries*. Health Econ Policy Law. 2012;7(1):73–101.
2. Ettelt S, Thomson S, Nolte E, Mays N. *Reimbursing highly specialized hospital services: the experience of activity-based funding in eight countries*. London, UK; 2006.
3. Busse R, Geissler A, Quentin W, Wiley M. *Diagnosis-Related Groups in Europe: Moving towards transparency, efficiency and quality in hospitals*. 1st ed. Maidenhead: Open University Press; 2011.
4. British Columbia Medical Association. *Waiting Too Long: Reducing and Better Managing Wait Times in BC*. Vancouver: British Columbia Medical Association; 2006.
5. Canadian Institute for Health Information. *Wait Times for Priority Procedures in Canada*. 2012.

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