Activity Based Funding in BC: Changes in Activity?

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Outline

• Background
• Data and Methods
• Results
  – Descriptive analysis
  – Time series model analysis
• Discussion
Background

• April 2010: Fundamental change to method of funding acute care hospitals in BC
  — Patient-focused funding (PFF)

• Partially fund hospitals based on the activities they perform (ABF)

• This study examines one dimension of the impact of ABF on the BC healthcare system
Background

• Other countries
  – Mix of ABF and global budgets
  – Prospective payment

• Policy rationale
  – Reduce lengths of stay
  – Access
  – Cost-efficiency
Data and Methods

• Population of hospital discharge data for BC
  – Observational data
  – 5 health authorities, 23 hospitals
• Inpatient and day surgery activity for monthly reporting periods
  – 2006/07 to 2011/12
• We applied time series models with an intervention effect to test the statistical significance of ABF on change in surgical volumes
Results of descriptive analysis
Total surgical volumes – raw data

Volume of inpatient and day surgeries


Fraser
Vancouver Coastal
Vancouver Island
Interior
Northern

ABF implemented (April 2010)
Results of descriptive analysis
Surgical volumes for inpatients – smoothed
Results of descriptive analysis
Day surgeries – smoothed

- Fraser
- Vancouver Coastal
- Interior
- Vancouver Island
- Northern

Volume of day surgeries

Year:
- 2006/07
- 2007/08
- 2008/09
- 2009/10
- 2010/11
- 2011/12

ABF implemented (April 2010)
Results of descriptive analysis

• Some increase in the number of inpatient and day surgeries over the study period, with exception of Northern Health
• Fraser and Vancouver Coastal Health have experienced the largest increases
• For inpatient surgeries there has been almost no change in surgical volumes for Northern, Interior and Vancouver Island
• Day surgery volumes in Fraser and Vancouver Coastal show steady increases
Time series model

• We further tested the policy effect of ABF by applying ARMI{(p, d, q)} models
  – p is the Autoregressive component, d is the trend component, and q is the Moving Average component.

• An intervention variable was built into the models to test for an effect the ABF policy on surgical volumes
  – SAS PROC ARIMA was applied for data analysis
Results of time series models

• Our analyses indicate that increasing volumes of surgery are long-term
  – No association with implementation of ABF reforms

• Newer data may indicate that hospitals displayed response to reforms, with effects yet to be observed
  – Other countries report ‘lag’ is considerable
Limitations

• Testing effects of policies is messy!
  – All large hospitals included in reform effort
  – No randomization into control/intervention arms
  – No ‘control’ group for diff-in-diff analyses
Discussion

• Hospital discharge data provides one perspective regarding changes to the healthcare system
• Surgical volume in BC hospitals linearly increasing over time
  – Starting before the ABF/PFF policies
• Contrast to international findings
  – Will we see effects later?
  – Next steps: additional control variables, quality, spending