



UBC CENTRE FOR  
HEALTH SERVICES AND POLICY RESEARCH

# 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

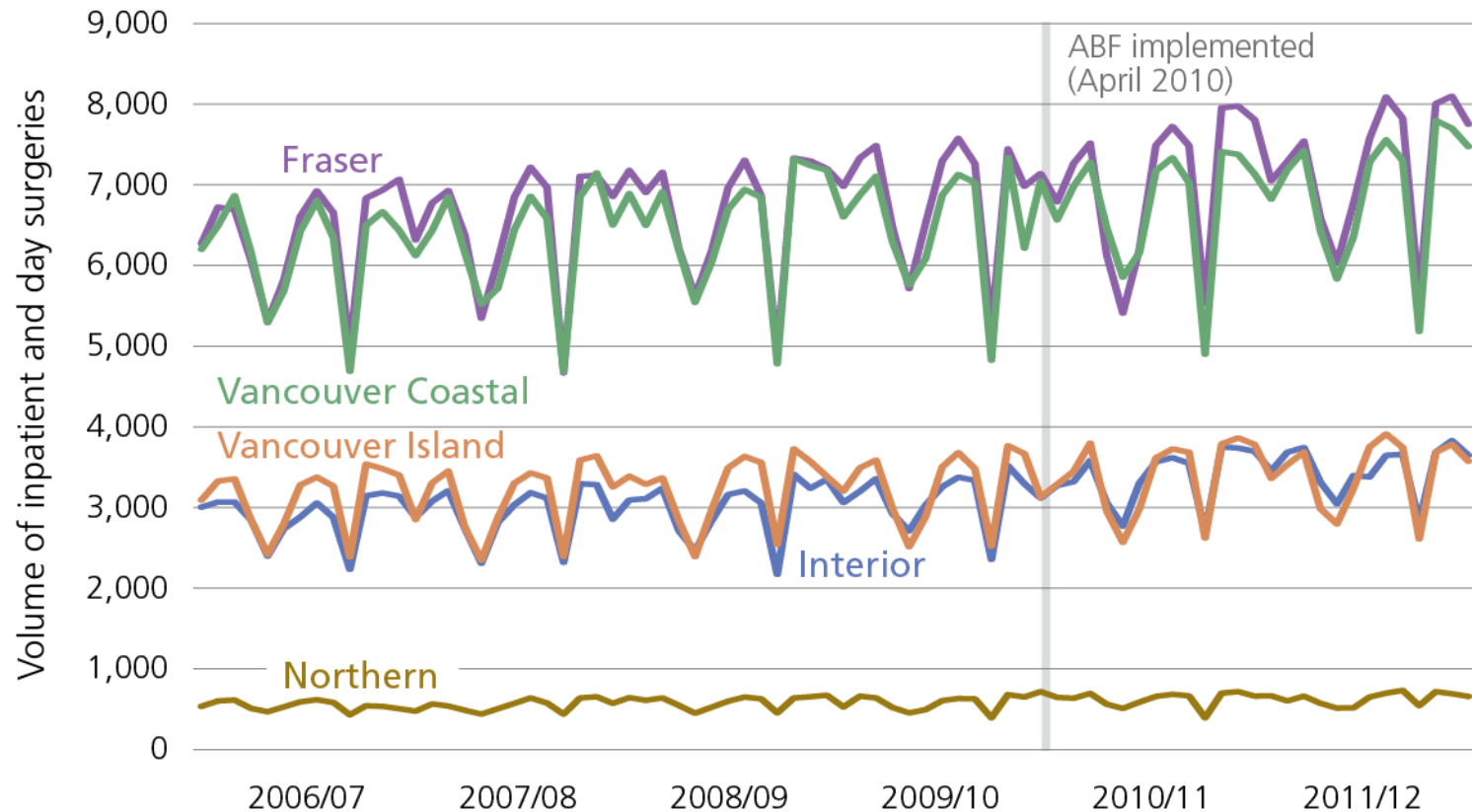


# Data and Methods

- 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



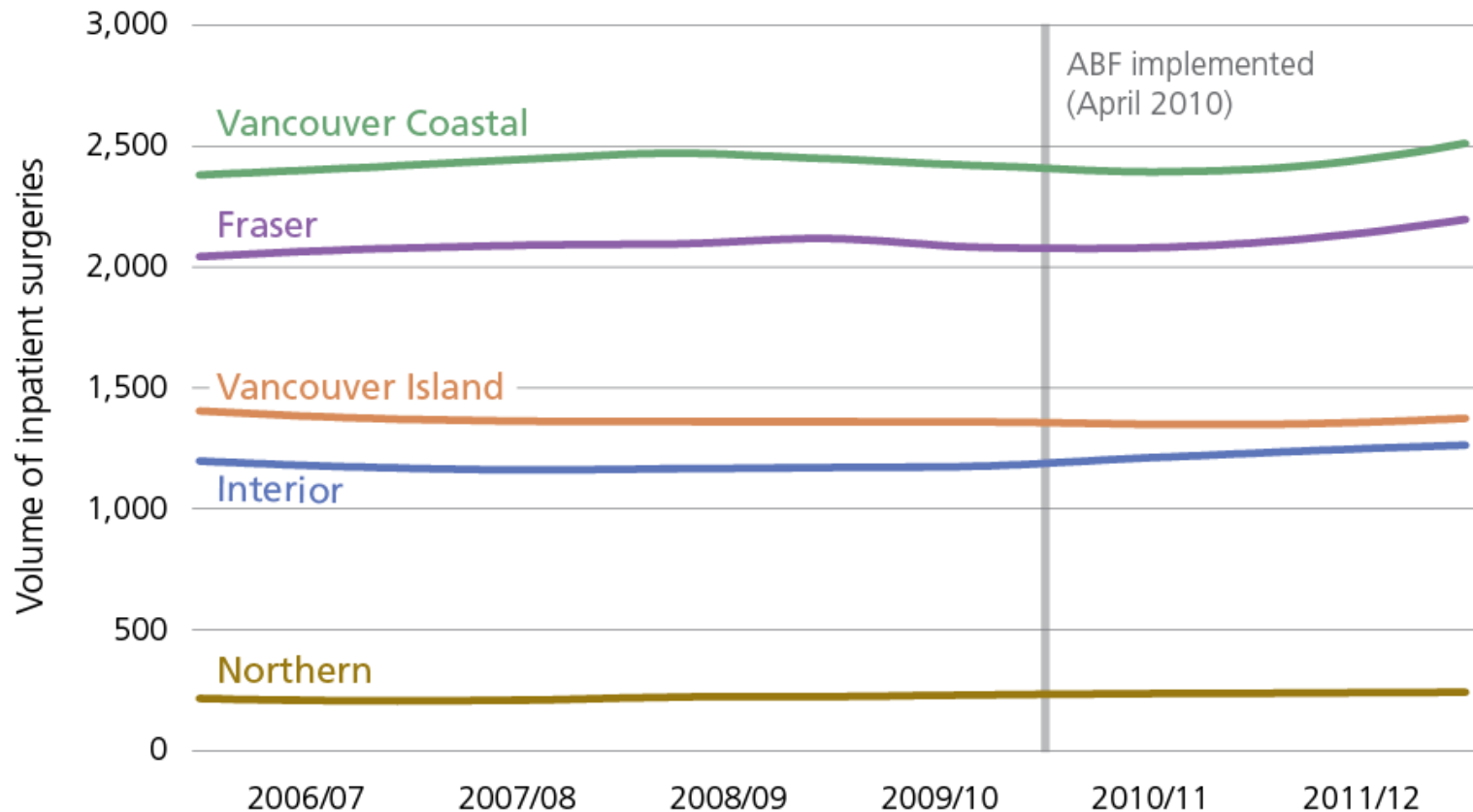
## Results of descriptive analysis Total surgical volumes – raw data





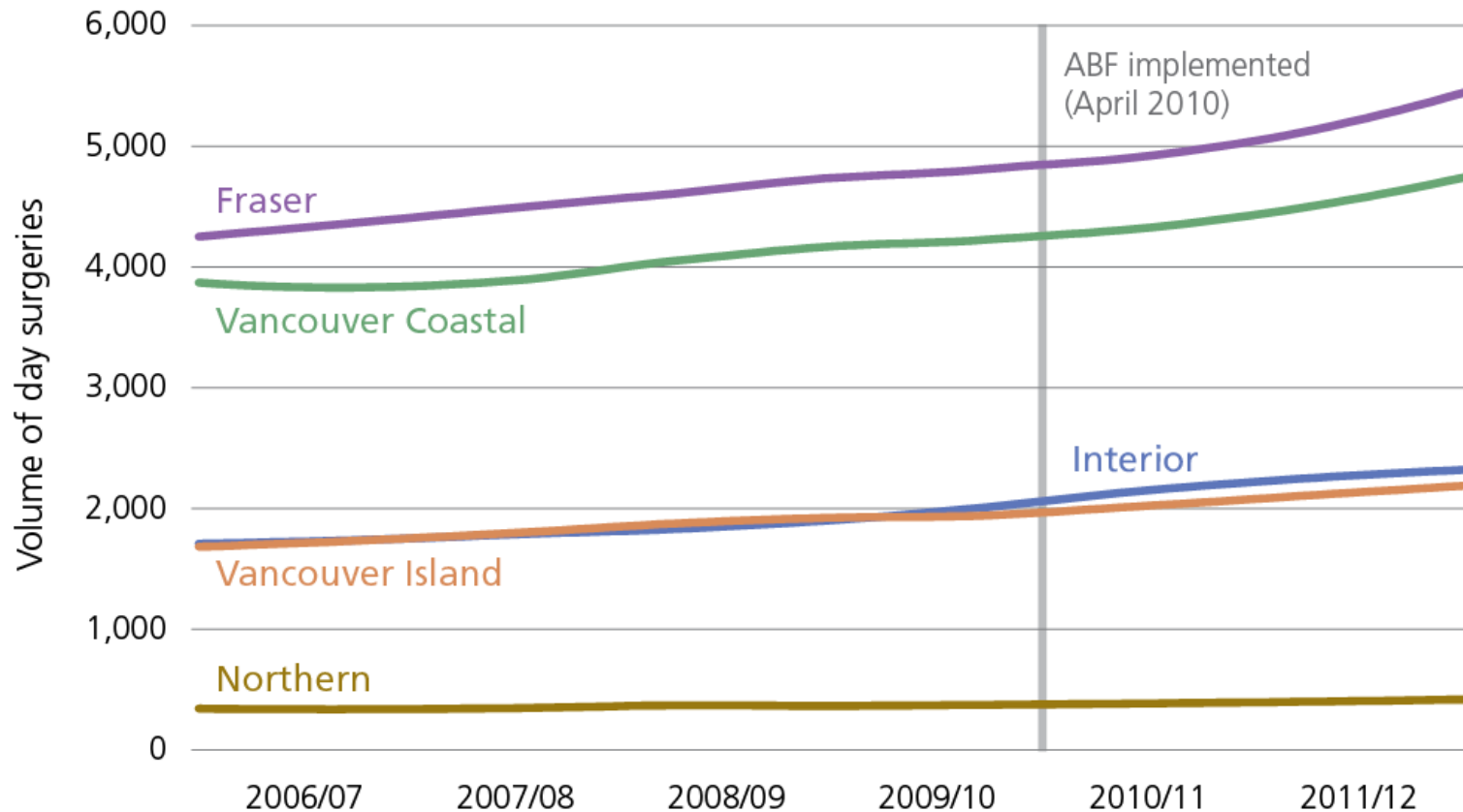
## Results of descriptive analysis

### Surgical volumes for inpatients – smoothed





## Results of descriptive analysis Day surgeries – smoothed







# 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 ARIMA(  $p, d, q$  ) 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



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