

Disclaimer: preliminary results, please do not cite, thank you!

WENNBERG INTERNATIONAL COLLABORATIVE SPRING POLICY MEETING 2018

Variation of preoperative chest radiography utilization in Switzerland
and its influencing factors: a multilevel study with claims data

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Smarter Health Care
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Introduction

Overall aim of our NRP74 project

Selected health interventions

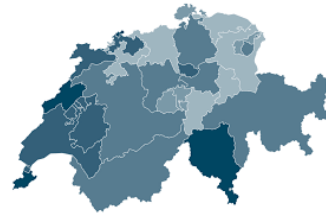


Preoperative chest radiography (POCR)

Clinical recommendations



Utilization and variation in Switzerland



Potential influencing factors

- Patient side
- Supply side
- Financial incentives, etc.

Specific aim:

- To assess the variation of POCR utilization across 106 Spatial Mobility regions (MS regions)
- To investigate the potential influencing factors

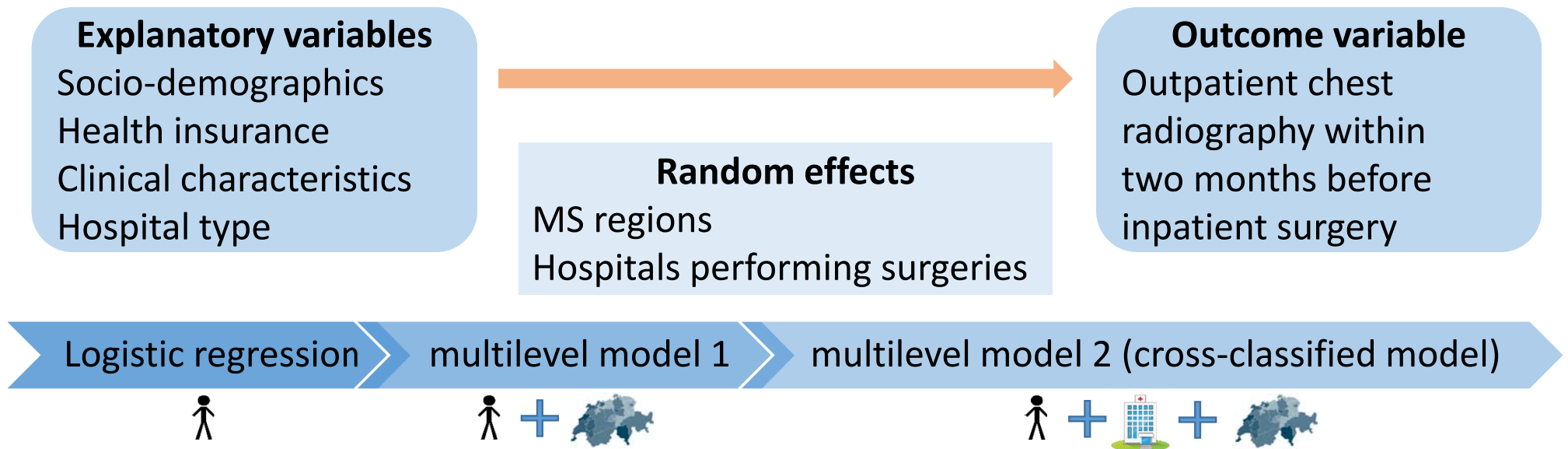
Material & methods

Data & study population

- Mandatory health insurance claims data on inpatient surgeries between 2013-2015

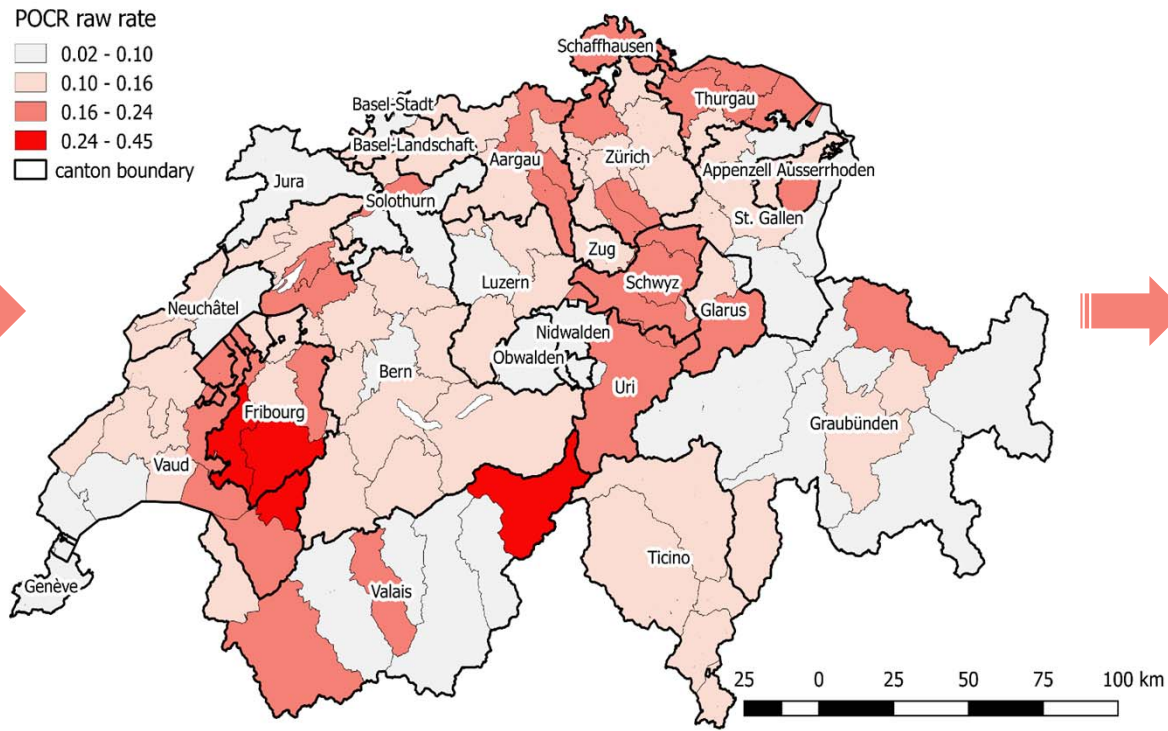
Methods

- POCR utilization rates across MS regions – mapping geographic distribution
- Regression analysis



Results

13 % of 47215 patients undergoing inpatient surgery had POCR



Region specific POCR raw rate: 2.5% to 44.4% (after age-standardization: 2.3% to 30.7%)

Moran's I: 0.26 (p<0.01)

Results

Table. multilevel models for the association between POCR utilization and influencing factors

	Multilevel model 1 (MS region)	Multilevel model 2 (hospital and MS region)
Fixed effects		
<i>Age</i> <i>Female</i>	<i>Intrathoracic pathology</i> <i>Multi-morbidity</i>	<i>High franchise</i> <i>Supplementary hospital insurance</i>
		<i>Similar results</i>
Hospital type	OR (95% CI)	IOR-80
<i>central healthcare provider</i>	1	ref
<i>primary healthcare provider</i>	1.37 (1.28, 1.46)	0.45 - 3.26
<i>surgical hospital</i>	1.62 (1.48, 1.78)	0.53 - 3.88
<i>Other specialized clinics</i>	1.29 (1.06, 1.57)	0.53 - 3.87
Random effects		
MOR _{MS}	1.49	1.25
MOR _{HP}		1.69
Moran's I of region level residuals	0.34 (p<0.01)	0.066 (p=0.115)

OR>1 OR<1; IOR-80: 80% interval odds ratio; MOR: median odds ratio

Conclusion

Substantial variation of POCR utilization



Influencing factors: especially health insurance characteristics



Variation across regions, especially across hospitals persisted after adjustment



Underlying mechanisms need to be further studies, e.g., lack of cluster level factors

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Thank you very much!

Acknowledgement

My colleagues at EBPI:

Matthias Schwenkglenks, Viktor von Wyl, Oliver Gruebner, Holger Dressel,
Agne Ulyte

Partners from Helsana:

Beat Brüngger, Eva Blozik, Caroline Bähler



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