University of Zurich UZH

Epidemiology, Biostatistics and Prevention Institute (EBPI)

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NRP 74 "Smarter Health Care"
Geographic variation in the utilisation of health care interventions: what is the role of recommendations and other influences?

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Background

- Chronic diseases are major contributors to the burden of disease
- Geographic variation in the utilization of healthcare services for chronic diseases may indicate over and under use
- Clinical recommendations and others possibly affect the degree of variation, see Figure 1.
- Clinical recommendations are currently heterogeneous and changing rapidly in Switzerland.

Figure 1. Possible influences on the degree of variation in health care interventions
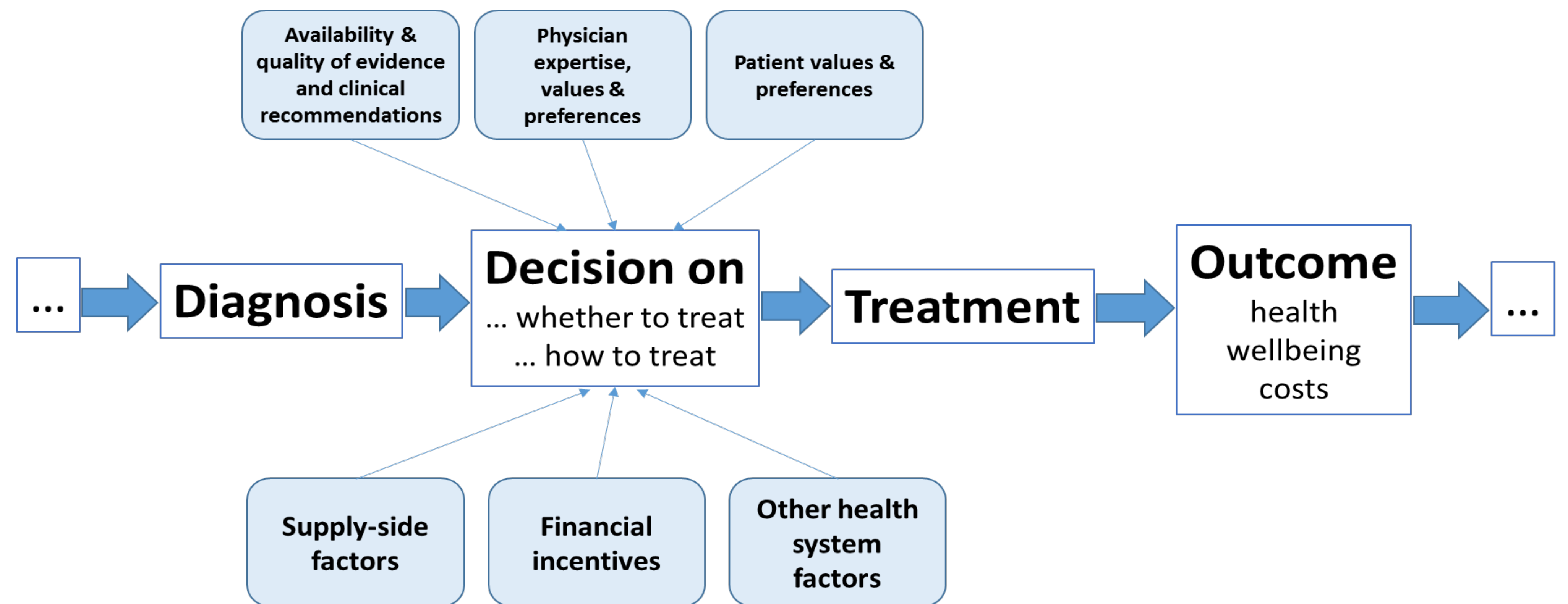
Objectives

- Elucidate the use of health care **interventions** and related **geographic variation**
- Assess the influence of **clinical recommendations** and additional predictors at the patient, healthcare, and geographic unit levels
- Contribute to related **health services research** methods especially in spatial analysis
- Define and disseminate suggestions for **health care improvements**

Methodology and approach

The project consists of three closely interlinked parts:.

Part 1: Selection of **interventions** for chronic diseases and assessment of **recommendation** status in Switzerland

Part 2: Study of **geographic variation** in the use of healthcare interventions for chronic diseases

Part 3: Study of **economic and clinical implications** of variation

- Focus on chronic diseases areas defined by the Swiss Federal Office of Public Health
- Systematic literature search to select eligible healthcare interventions
- Assess quality, status and management of related recommendations

- Small area variation analysis
- Geographic visualization (e.g. Figure 2)
- Multilevel regression models
- Geospatial modeling
- Assess overarching patterns across interventions

- Primarily focus on consequences for healthcare expenditure
- Construct personalized expenditure trajectories by polynomic linear regression
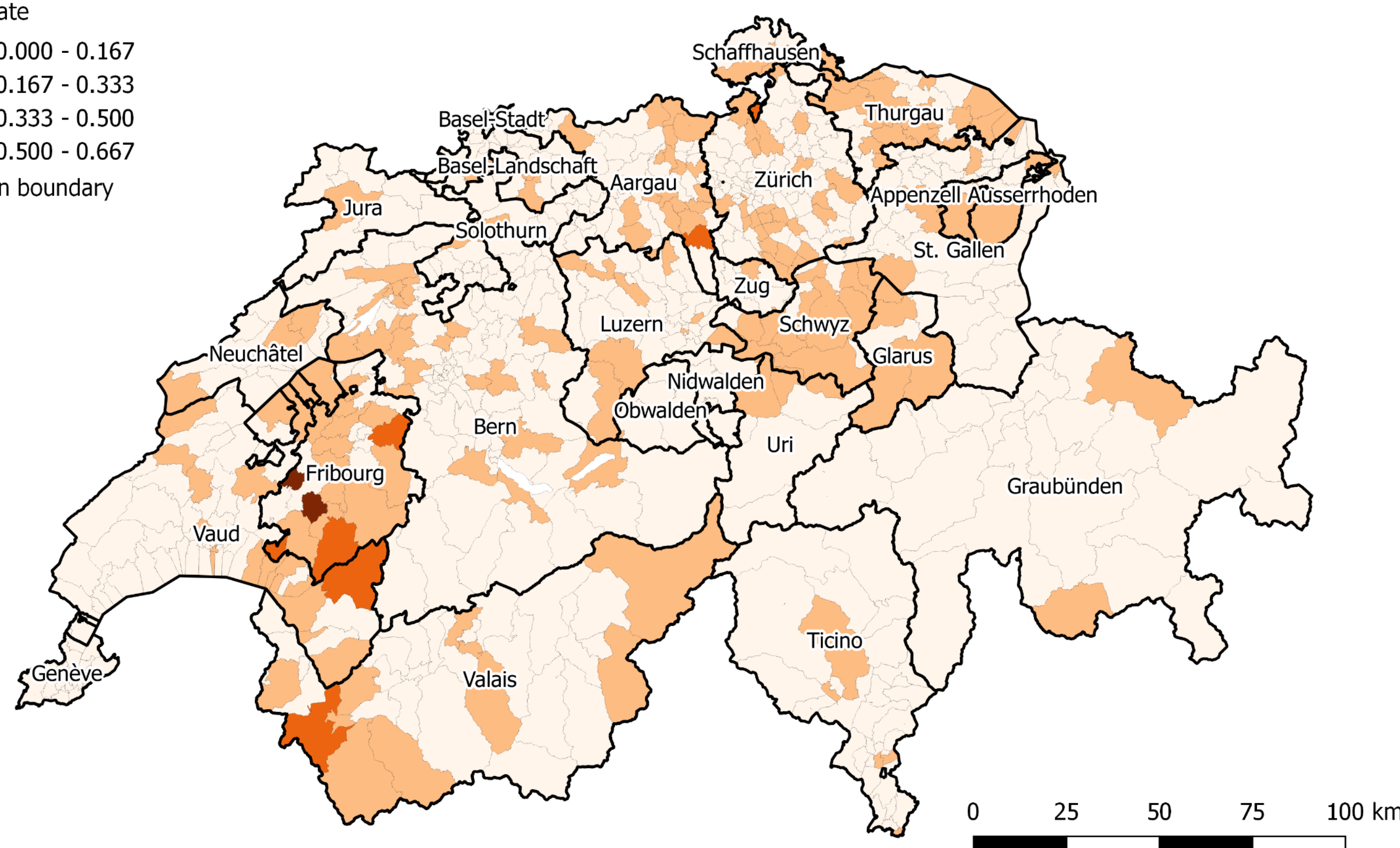- Analyse expenditures by counterfactual distribution decomposition

Figure 2: Raw rate of preoperative chest radiography within 2 months before chest surgery by Medstat region

Expected outcomes / Questions to be addressed

1. Medical professional societies
   - To what degree are clinical recommendations followed?
   - Which types of recommendations or approaches to implementation have most impact?
   - How to achieve high quality more efficiently?
2. Health insurance companies, cantonal health authorities, Federal Office of Public Health
   - Which disease areas and interventions require closer scrutiny
   - Implications for planning / development of healthcare services
3. The general public
   - A publicly available website devoted to the availability and quality of recommendations

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