

Welche Faktoren beeinflussen die Durchführung von Wahleingriffen?

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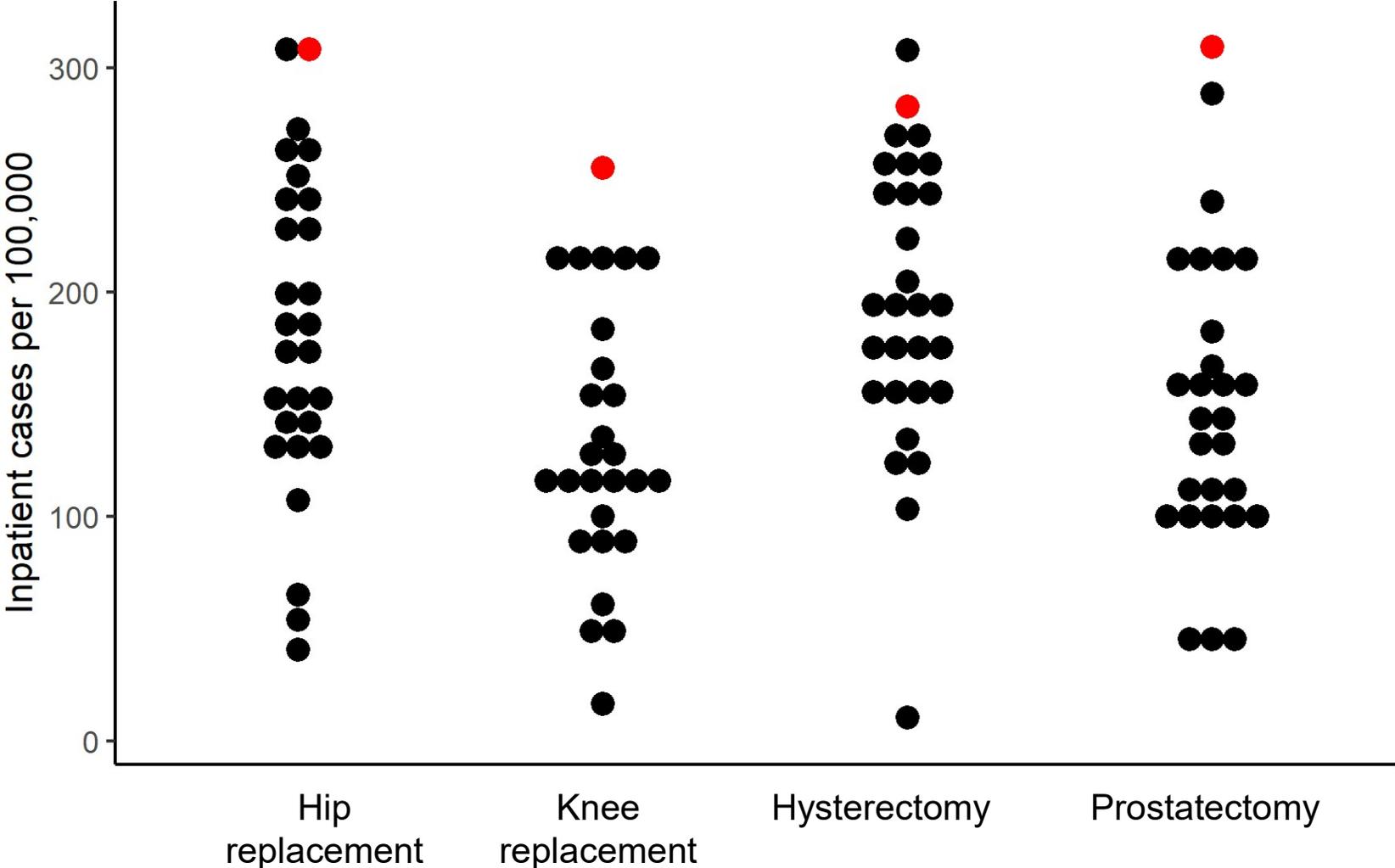
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Historical background

- In the 1970s, John Wennberg demonstrated a great variation in the use of elective surgical interventions across U.S. hospital regions not explained by patient preferences and illness.
- More care is not necessarily better: higher health care use resulted in more costs but not in better quality of care, patient outcomes, or satisfaction.
- Compared to other OECD countries, Switzerland has one of the highest or the highest procedure rates for hip/ knee replacement, prostatectomy, and hysterectomy.

Wennberg J. et al. Small area variations in health care delivery. Science 1973;182:1102-8.

Variation in procedure rates across OECD countries (2015)



Definition

- Preference-sensitive interventions are elective interventions for which there is more than one option and where outcomes will differ according to the chosen option.
- Main drivers are physician beliefs about the indications.

Variations in preference-sensitive procedures in Switzerland

The specific aims were:

1. To assess variations in age/sex-standardized preference sensitive procedure rates during 2013 - 2016 across Swiss Hospital Service Areas (HSAs).
2. To assess whether regional variations are explained by regional differences in potential determinants of variation, including population demographics, sociocultural factors (language, socioeconomic status, population density, insurance status), population health, and supply factors (number of specialty physicians).

Methods overview

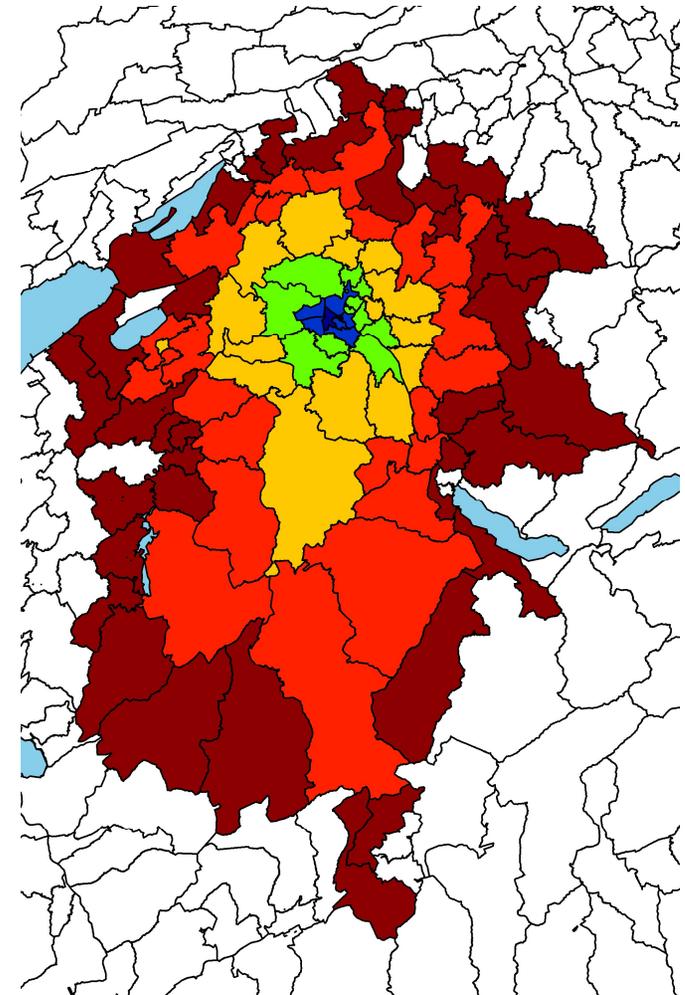
Design	Population-based, retrospective, small area variation analysis
Data	Routinely collected, person-level, patient discharge data from all Swiss acute care hospitals (Medizinische Statistik der Krankenhäuser, Swiss Federal Statistical Office, Population-level census data, FMH statistics)
Study period	Calendar years 2013 – 2016
Inclusion	Procedure codes for: <ul style="list-style-type: none">- Hip / knee replacement- Hysterectomy- Prostatectomy- Spine surgery- Bariatric Surgery
Exclusion	Patients living outside Switzerland at the time of treatment Patients aged <18 years
Numerator	Number of procedure specific hospitalizations aged ≥ 18 years
Denominator	Total population aged ≥ 18 years in 2013 – 2016

Statistical analyses

- Age-/sex-standardized mean procedure rates per 100,000 persons
- Measures of variation
 - Systematic component of variation (SCV), a measure of the non-random variation: a SCV >5 indicates a high, >10 a very high variation
- Multilevel regression models, progressive adjustment for:
 - +Age / gender
 - +Socioeconomic /-cultural factors
 - +Population health
 - +Number of specialty physicians
- Residual variance of the full model = proxy for unwarranted variation

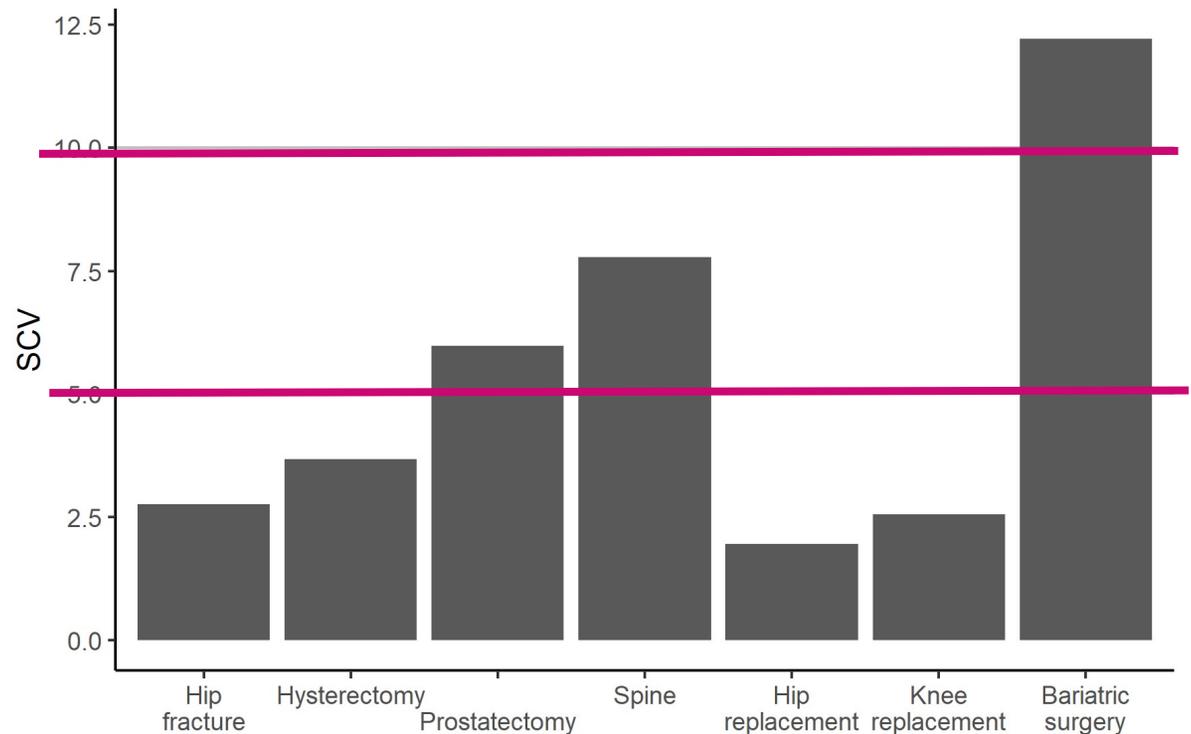
Hospital Service areas (HSAs): automated method

- For each hospital region: neighboring regions are merged with the HSA where most patients go.
- HSAs grow around a hospital until some conditions are reached (e.g. number of interventions).



Variation in preference sensitive procedures

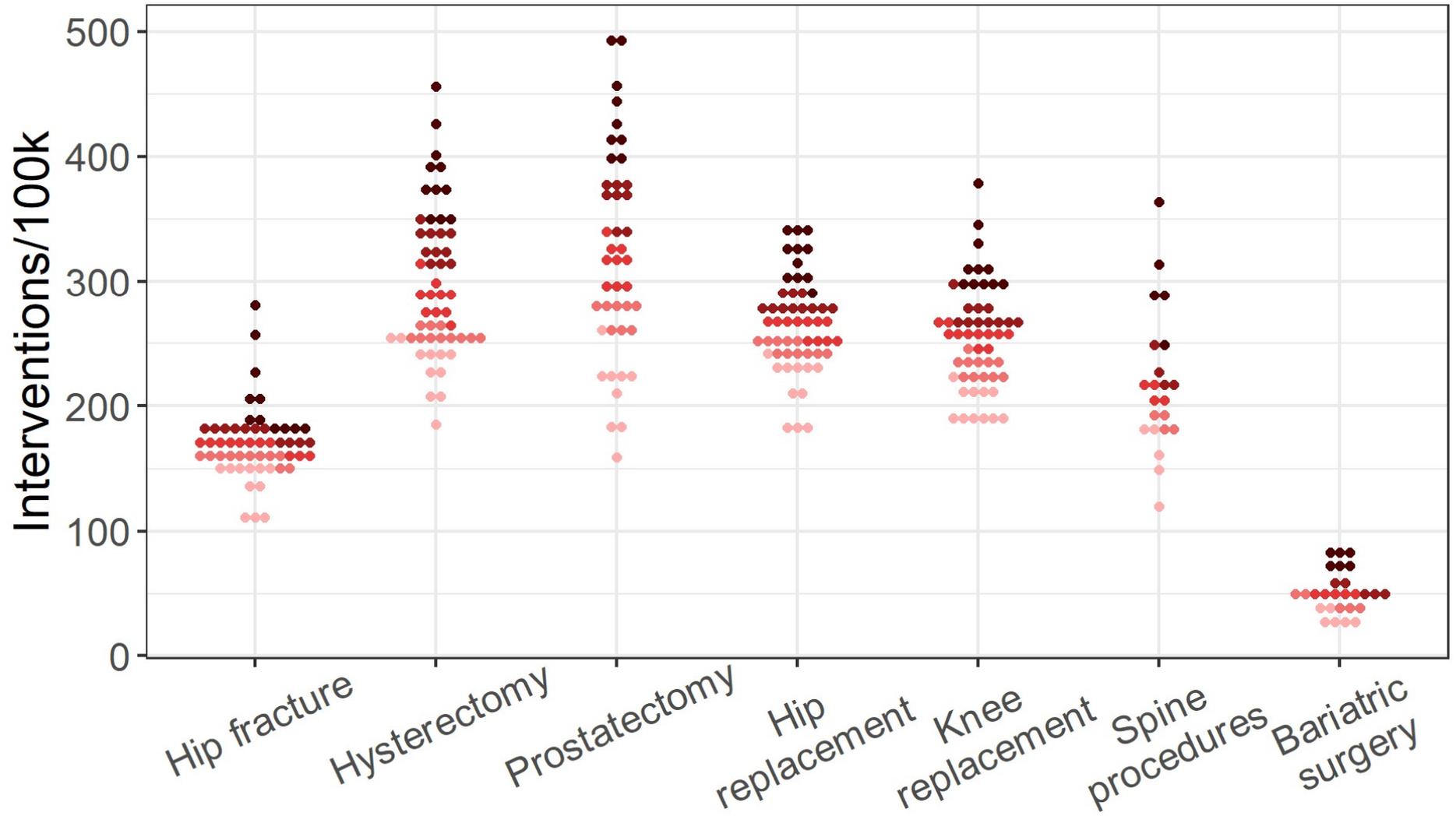
	SCV
Hip fracture	2.8
Hysterectomy	3.7
Prostatectomy	6.0
Spine	7.8
Hip replacement	2.0
Knee replacement	2.6
Bariatric surgery	12.2



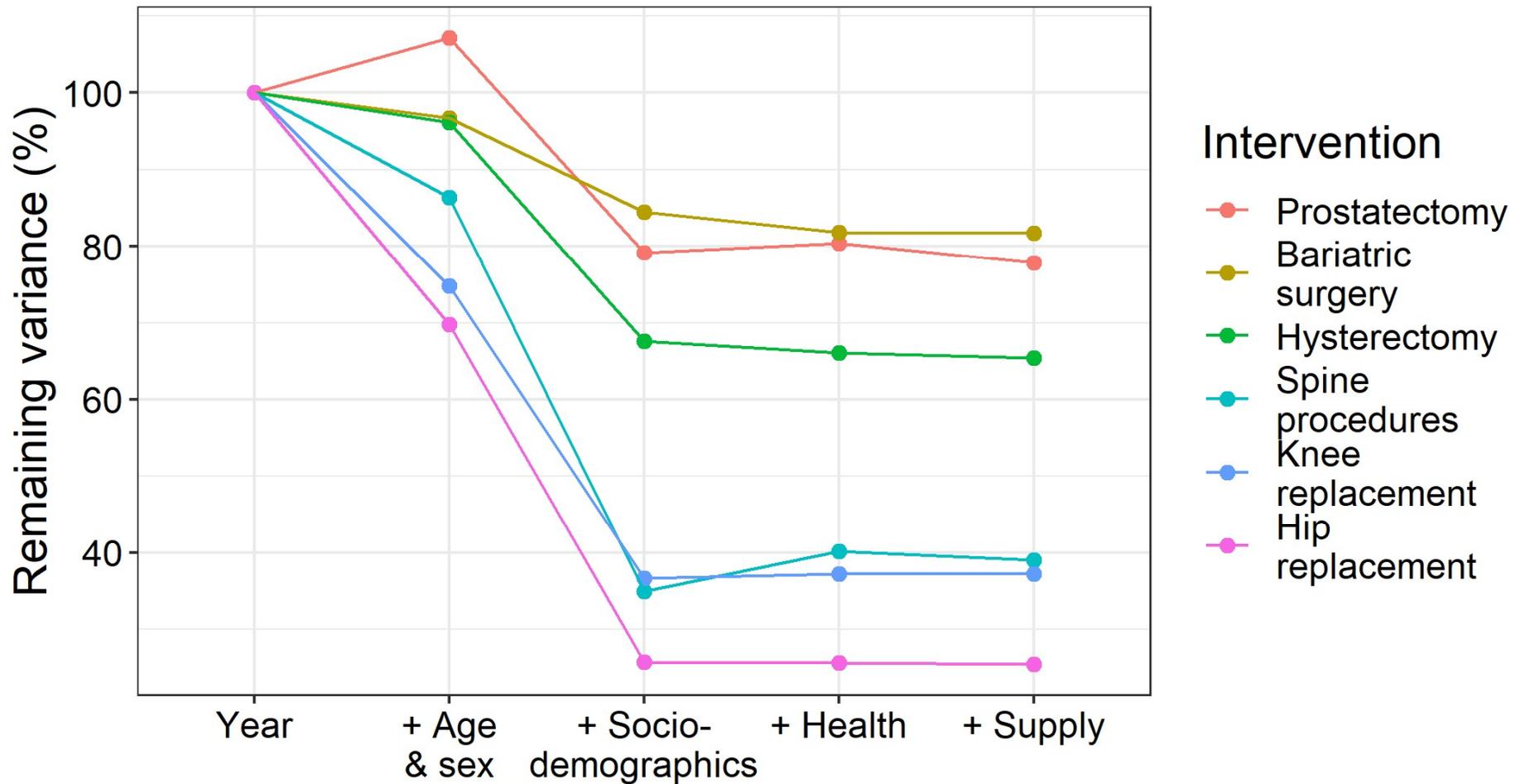
SCV >5 = high variation

SCV >10 = very high variation

Procedure variation across HSAs



Main determinants of variance



Socioeconomic determinants

	Hip	Knee	Hysterect.	Prostatect.	Bariatric surgery	Spine surgery
French/Italian§	n.s.	- 12% ↓	- 11% ↓	- 24% ↓	n.s.	- 25% ↓
Urbanicity#	n.s.	n.s.	Periurban + 17% ↑	n.s.	n.s.	n.s.
SSEP	n.s.	n.s.	n.s.	n.s.	n.s.	-
Swiss Citizenship*	+ 11% ↑	n.s.	n.s.	n.s.	n.s.	+ 20% ↑
HP/P Insurance*	n.s.	- 10% ↓	n.s.	- 15% ↓	n.s.	n.s.

§reference: German speaking area

#reference: urban areas

*per 10% increase of hospital goers with Swiss citizenship / (semi-)private insurance

n.s.: not significant

Strength and Limitation

Strength

- We used a fully automated, reproducible method to derive HSAs based on patient flows.
- High quality patient data (all hospitalizations recorded).

Limitations

- Interpretation of determinants can be difficult (due to aggregation to different spatial scales).
- Cannot look at patient level characteristics (no information on those that didn't receive an intervention).

Summary and discussion

- Switzerland has one of the highest procedure rates for most preference sensitive procedures.
- We observed a moderate (hip /knee replacement, hysterectomy), high (prostatectomy, spine procedure), and very high (bariatric surgery) variation in procedure rates across Swiss HSAs.
- The main determinants of variation were socioeconomic and cultural factors: lower procedure rates were found in people living in the French / Italian speaking part of Switzerland.
- Physician density, (semi)private insurance status, and population health did not influence procedure rates.
- Between 20 and 82% of the variation remained unexplained and is most likely due differences in physicians preferences.

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