Which Factors Influence The Regional Rate of Invasive Coronary Angiography?

A Qualitative Study For Suspected Stable Coronary Heart Disease

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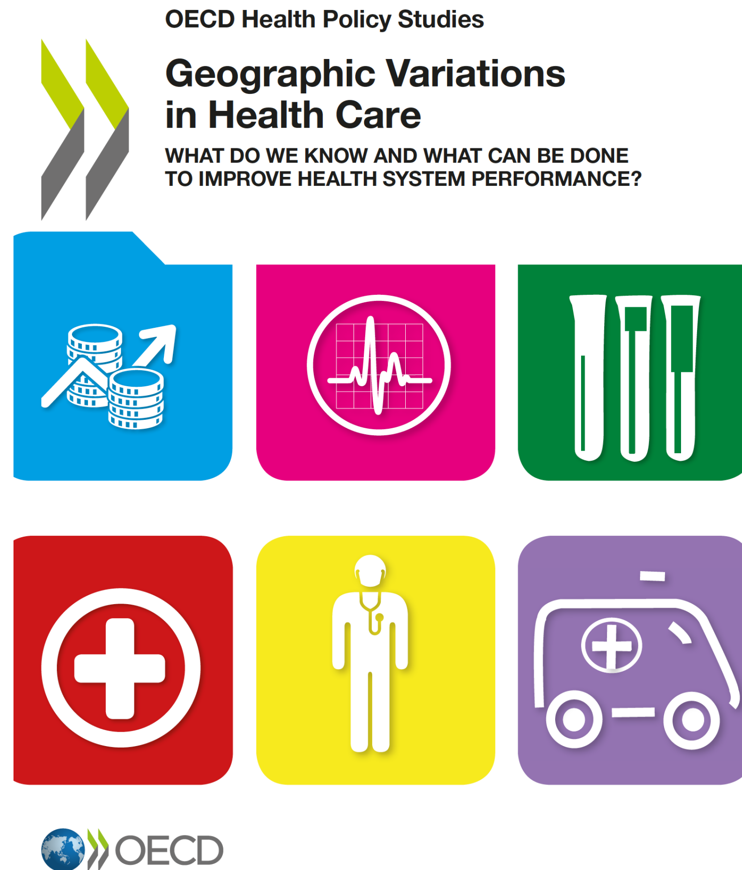
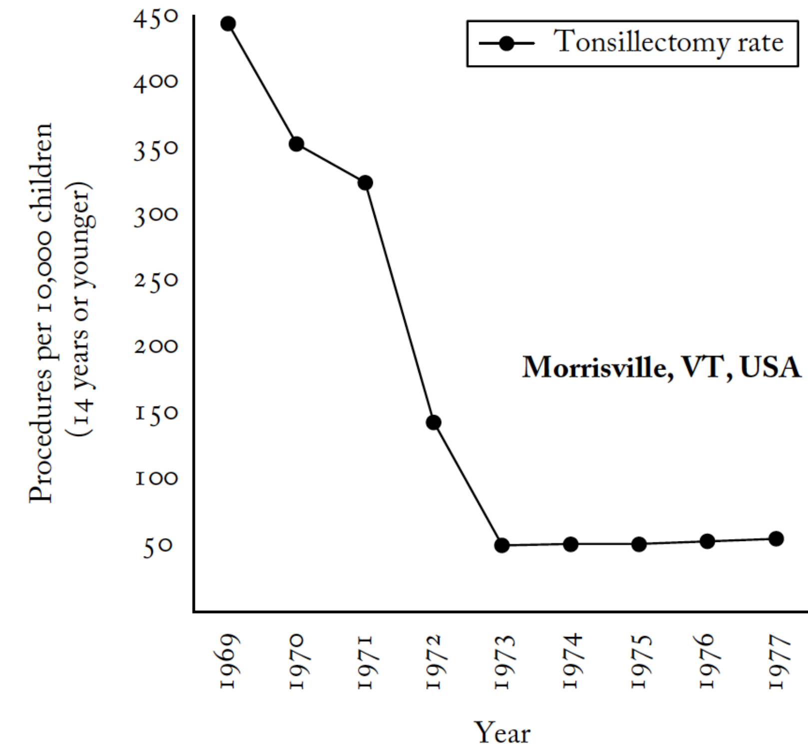
Prologue

International conference GEOGRAPHIC VARIATIONS IN HEALTH CARE USE organised by the OECD and the Bertelsmann Stiftung, Berlin, 16th September 2014



Change following the feedback of information on the rates of tonsillectomy in Morrisville, Vermont.

Wennberg et al. Pediatrics 1977



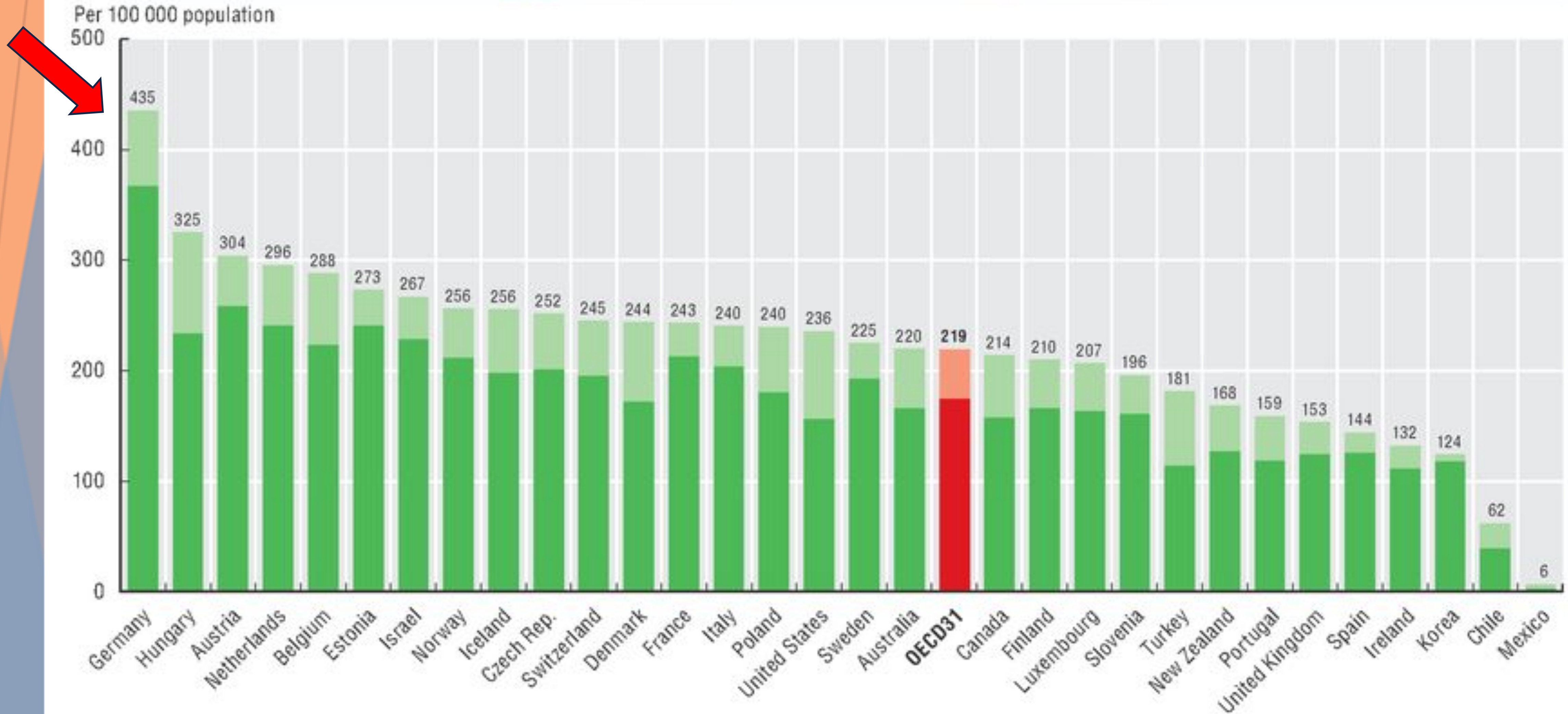
Background

Germany

highest rate of coronary angiography worldwide.

- wide variations between German regions for diagnostic coronary angiographies and and percutaneous coronary interventions (PCI)
- not attributable to variation in morbidity
- reflects factors such as guideline adherence, physician-patient communication and access to care.

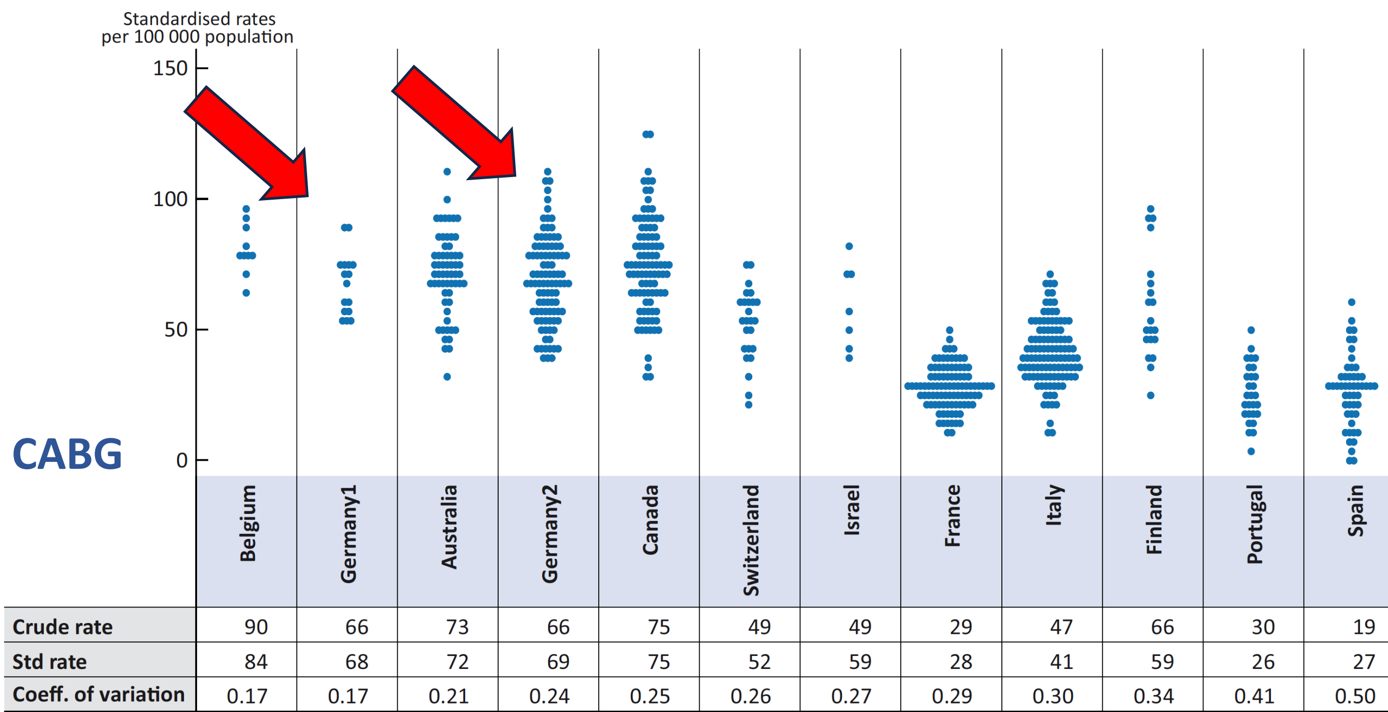
Coronary revascularisation procedures 2013 (or nearest year)



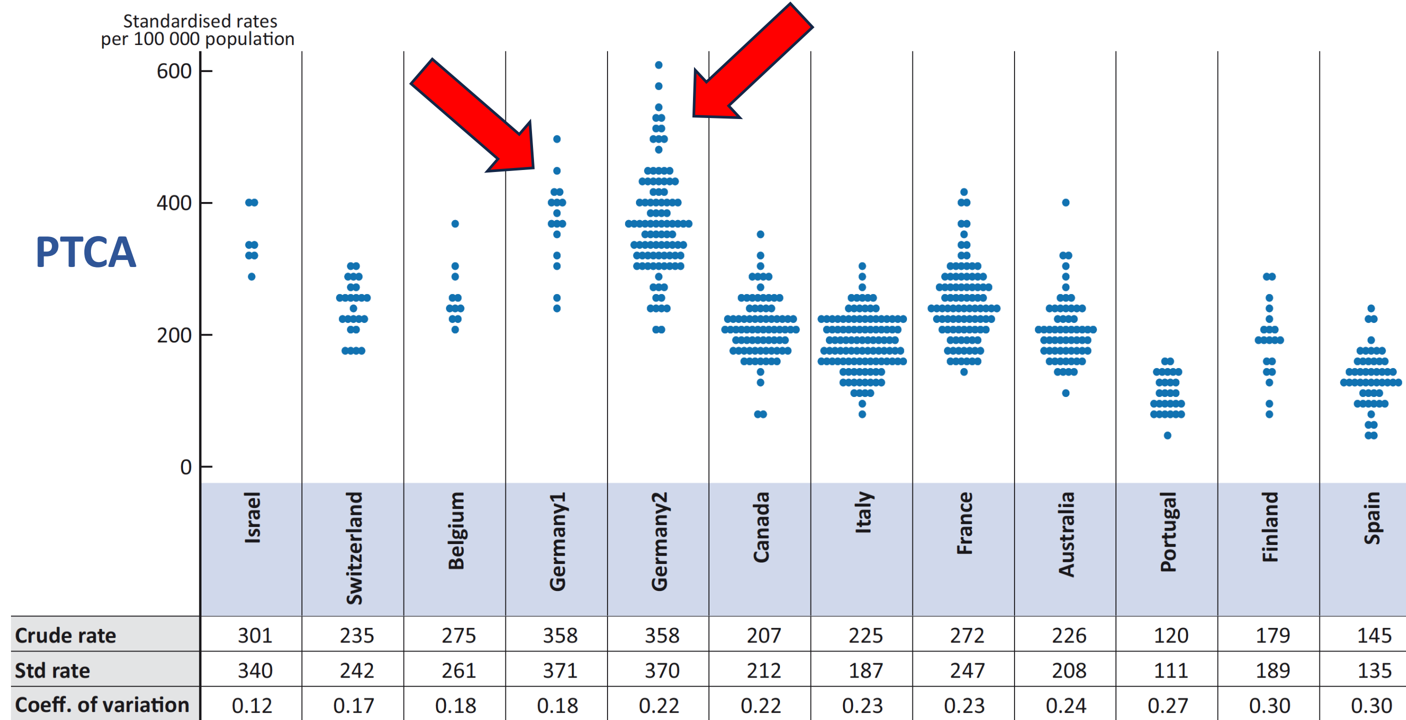
OECD. Health at a Glance 2015, p.111

Procedure rates across and within selected OECD countries,

2011 or latest year



	Belgium	Germany1	Australia	Germany2	Canada	Switzerland	Israel	France	Italy	Finland	Portugal	Spain
Crude rate	90	66	73	66	75	49	49	29	47	66	30	19
Std rate	84	68	72	69	75	52	59	28	41	59	26	27
Coeff. of variation	0.17	0.17	0.21	0.24	0.25	0.26	0.27	0.29	0.30	0.34	0.41	0.50



	Israel	Switzerland	Belgium	Germany1	Germany2	Canada	Italy	France	Australia	Portugal	Finland	Spain
Crude rate	301	235	275	358	358	207	225	272	226	120	179	145
Std rate	340	242	261	371	370	212	187	247	208	111	189	135
Coeff. of variation	0.12	0.17	0.18	0.18	0.22	0.22	0.23	0.23	0.24	0.27	0.30	0.30

OECD. Geographic Variations in Health Care, 2014. p 40-41

The KARDIO-Study

Invasive coronary angiography (iCA) in **stable** coronary heart disease

Preference-sensitive care

- significant tradeoffs among the available options
- treatment choices should be based on the patient's own values
- misuse: failure
  - to accurately communicate the risks and benefits of the alternative treatments
  - to base the choice of treatment on the patient's values and preferences

Center for the Evaluative Clinical Sciences. (2007). *Preference-Sensitive Care. A Dartmouth Atlas Project Topic Brief*.

The KARDIO-Study

Three components

A Identification of regional variations of invasive coronary angiography (iCA) use in Germany routine-data analysis

B Identification of differences of factors influencing the rate of iCA in high- vs. low-use regions qualitative study

C Implementation of local interdisciplinary clinical pathways intervention study

Kardio Study **Component B**

Qualitative analysis of contextual factors in high-rate vs. low-rate regions

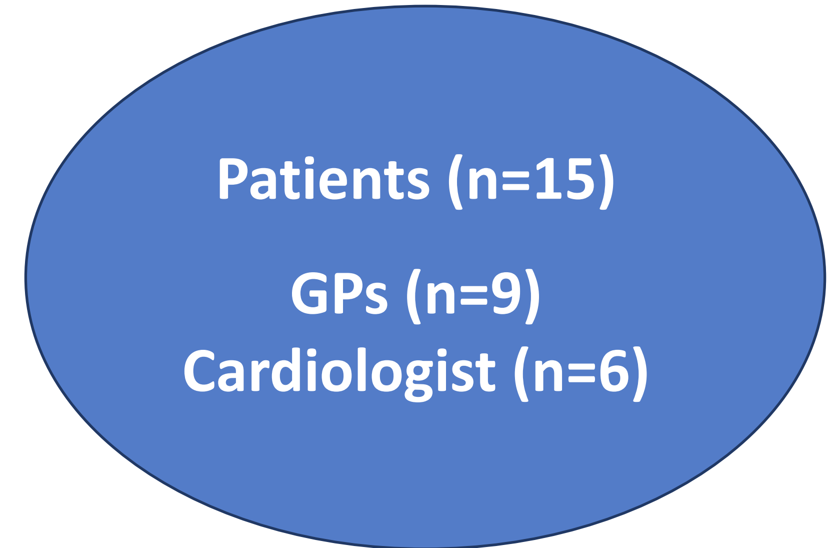
1. How do primary care physicians and cardiologists justify their practice (beliefs)?
   Which local norms and circumstances influence their behaviour?
   → one-on one interviews, stimulated recall

2. How do high-rate regions and low-rate regions differ?
   local structure, cooperation, attitudes towards guideline recommendations
   → focus group interviews

3. How do patients experience the decision process?
   How do physicians communicate with patients?
   → one-on one interviews

Method
Qualitative evaluation of influencing factors

One-on-One Interviews
Patients, GPs, Cardiologists



Region-1: Average-use-region; university town

Interview guideline

- Physicians: „pathways“ and concepts
- Patients: experiences and decision making

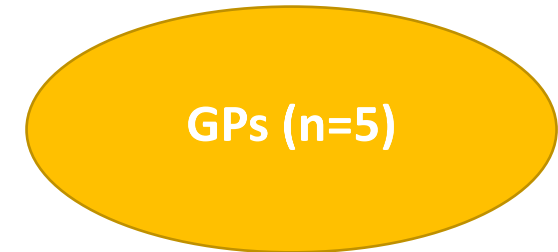
Method
Qualitative evaluation of influencing factors

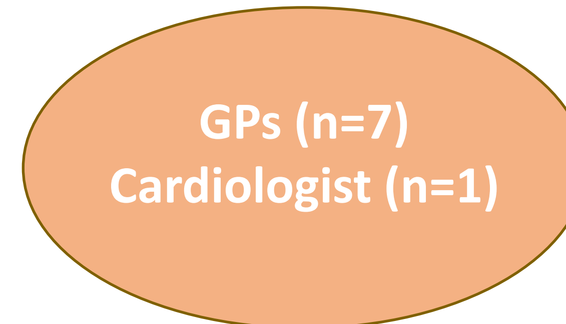
Focus group discussions GPs

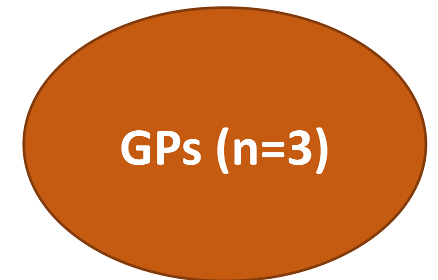
Interview guideline

- Self-perceived role
  high or low-use region?
- Reflection of actual role
  routine-data based
- Regional structures

1 low-use region, countryside, Thuringia



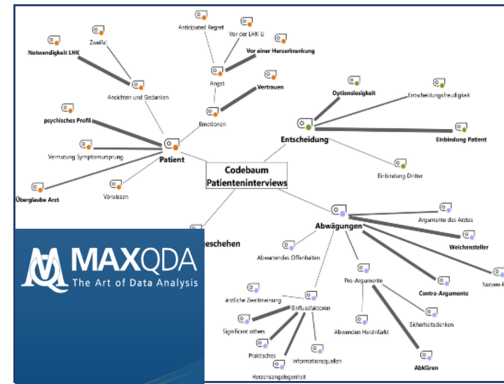




2 high-use region, countryside, Hesse

3 high-use region, rural, Bavaria

Qualitative analysis



Semistructured Guidelines
- Interview
- Focus Group

Interviews/Focus groups:
- Recorded
- transcribed verbatim

Coding:
- Deductive & inductive
- Consensual approach

Qualitative content analysis
- Cross-case-summaries
- Physician interviews + focus groups: abstraction

Results:
Sample of interviews and focus groups

Setting	n	Age m (SD)	Male gender n (%)	Working in practice in years m (SD)	Duration m (SD)
Interview Cardiologists	6	52 (9.2)	5 (83.3)	15 (7.3) Missing (n=2); both working in hospital	0:55:10 (15:50 min)
Interview GPs	9	49 (5.23)	6 (66.7)	19 (9.3)	0:44:49 (12:41 min)
Interview Patients	15	66 (10.72)	11 (73.3)	na	0:37:34 (7.25 min)
Focus Gr 1	3	Missing values	2 (66.7)	13 (5.0)	1:35:57
Focus Gr 2	8	57 (9.46)	7 (87.5)	11 (7.0)	1:50:58
Focus Gr 3	5	51 (7.42)	3 (60.0%)	14 (9.9)	1:15:10

Results: Patient perspective

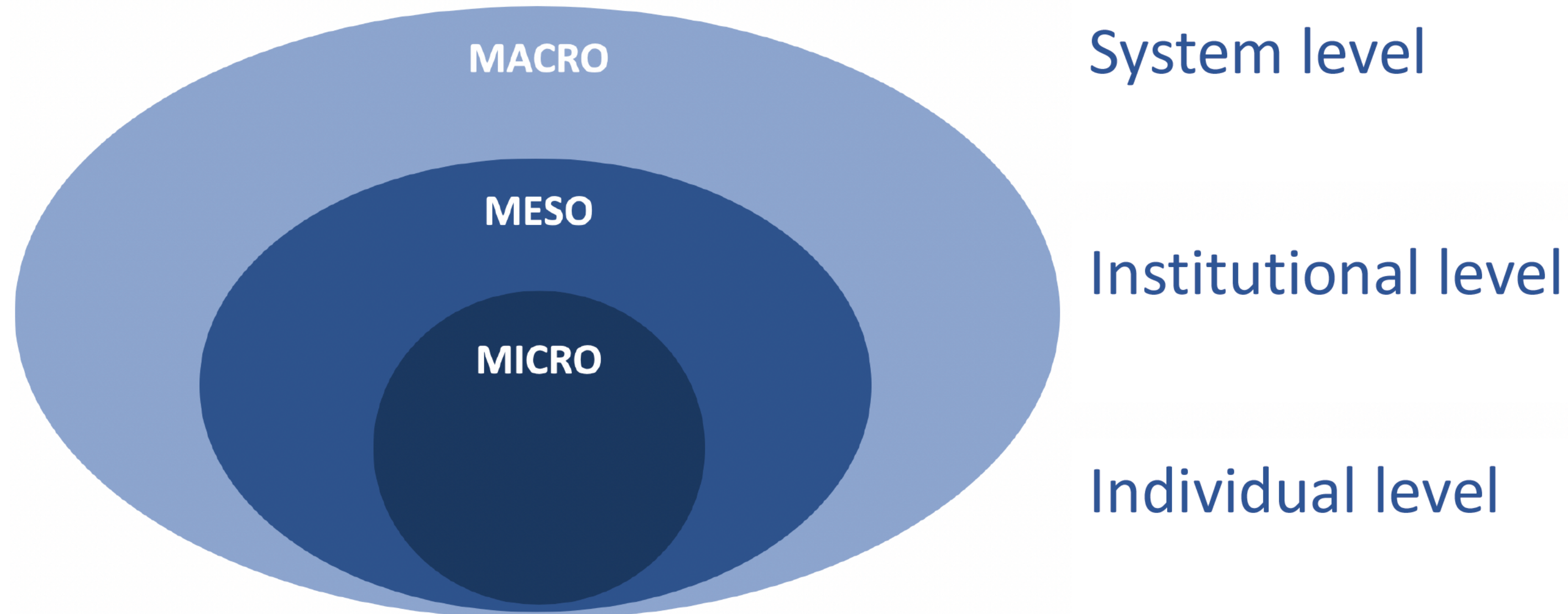
- Potential heart disease perceived as important „matter of the heart“
- iCA perceived as urgent
- iCA perceived as low-risk minor intervention
- no iCA is no option

Well, good, but the procedure itself, it was actually easy-peasy. It's the engine somewhere, the heart. You think about it. But I want to be honest, **a visit to the hairdresser is worse** [than coronary angiography] (Patient-08)

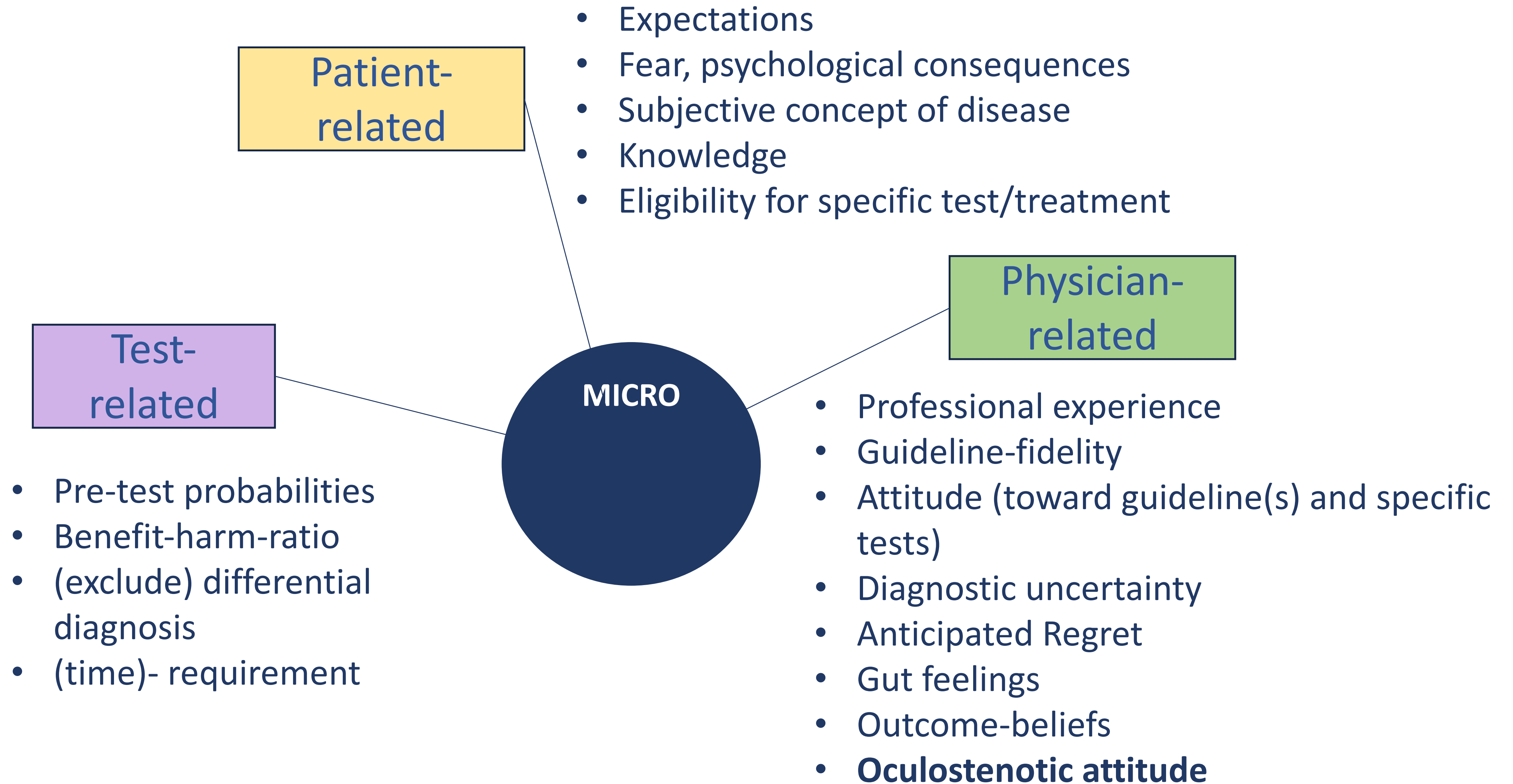
Results physicians One-on–One interviews and focus groups

We abstracted our codings according to four main themes

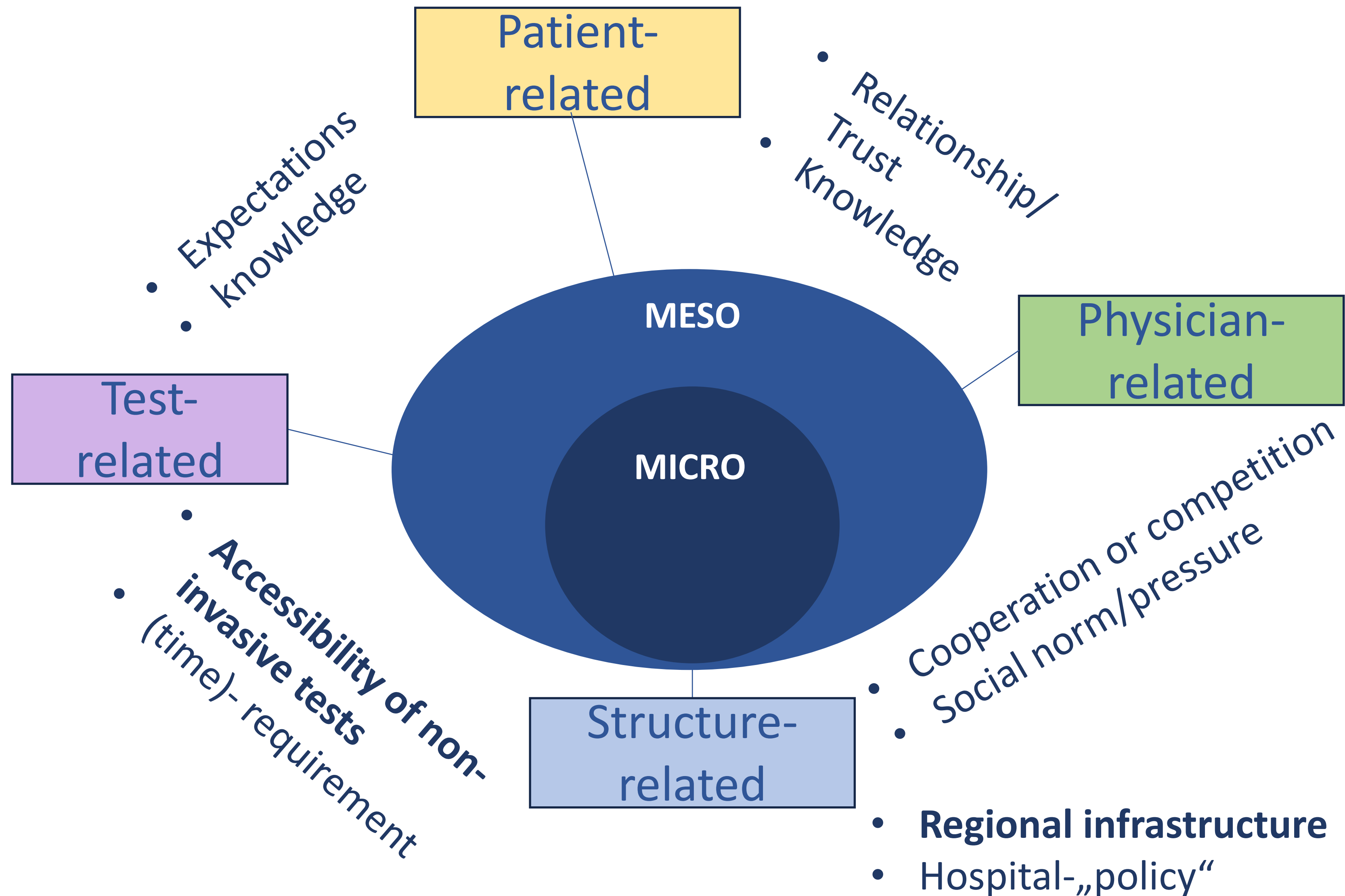
Patient | Physician | Test(s) | Structure



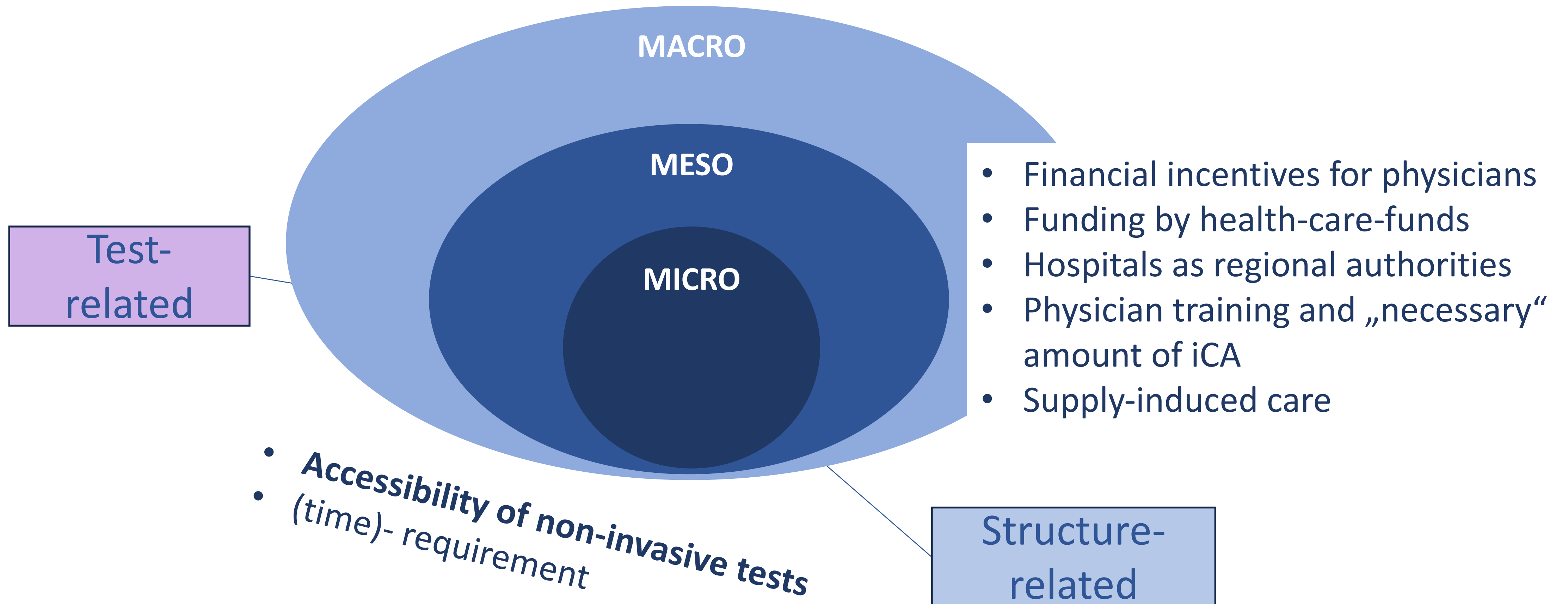
Results interviews and focus groups physicians: micro level



Results physicians: meso-level



Results physicians: macro-level



Region 1: high-use, rural

- iCA in regional hospital, no outpatient iCA
- GPs and patients connected to the regional hospital
- GPs ***grateful*** for the modern infrastructure
- GPs suspect overuse of iCA

Region 2: high-use, rural

- regional hospital: new cardiologic chief physician, willing to ***compete*** with university hospitals
- ambulatory sector: three new invasive cardiologists, cooperating with a neighbouring hospital
- GPs: iCA ↑ ➡ GPs: bystander-feeling

Region 3: low-use, rural

- few GPs, no outpatient cardiologists
- university clinic in neighbouring district, loose connection
- GPs feel on their own

Conclusions

- the results point to a unique array of factors in each of the three regions, which seem to explain part of the high / low iCA-activity
- these factors might modify the effect of well-known factors like financial incentives
- more research might (or might not) reveal patterns of factors, which characterise high- and low-use regions

aim: to facilitate better targeted interventions to reduce unwarranted variation to the welfare of patients

Next step

Development and implementation of regional clinical pathways for patients with chest pain

Limitations

- Qualitative data results *not* „objective“ or „countable“
- Small study: 4 regions, 29 participants (22 GPs, 7 Cardiologists)
- Focus groups: small sample, 13 GPs, one cardiologist
- Most invited cardiologists not willing to participate
- Focus groups: only rural regions

Discussion

Can qualitative analysis on the regional level contribute substantially to the

- understanding of the causes of regional practice variations?
- development of interventions to lower unwarranted variations?
- clarifying the interaction between structure and culture?

☞ qualitative analysis: necessary complement or dead end?

Funding

Signature: 01VSF16048

Qualitative study and project management

Intervention study (treatment pathway)

UNIVERSITÄTSMEDIZIN GÖTTINGEN UMG

Data analyis

Routine-data and PCI-register

BARMER

Consulting and Support

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