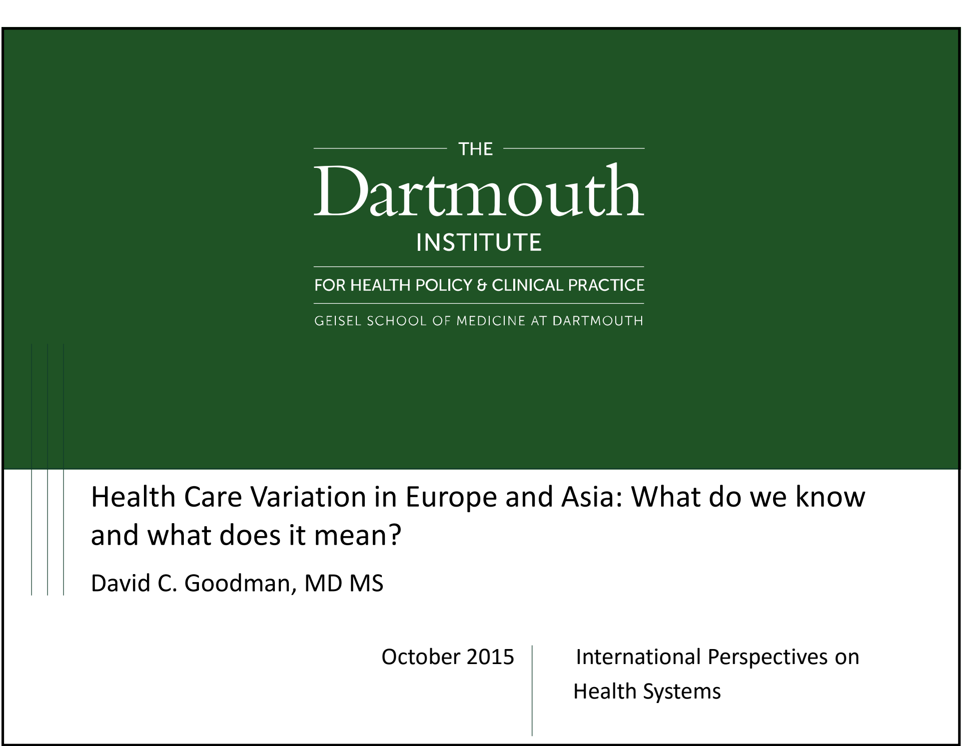
Welcome to "Health Care Variation in Europe & Asia"

Supported by the Cogswell Benevolent Trust

- **We will begin the seminar at 12:10 p.m. ET**
- **Please mute your audio ☺**
- **#mhcdsLive**

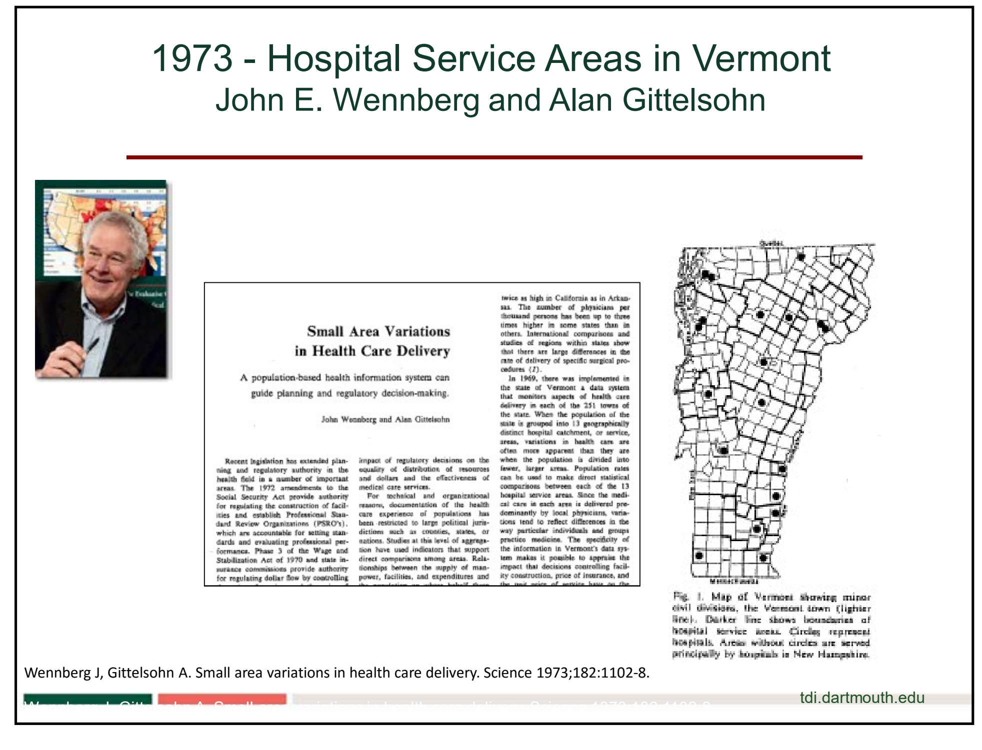
- **Upcoming events**
  - Thurs. 11/12: Joakim Edvinsson'14 "Person-Centered Care: Two Case Studies from Sweden"
  - Symposium April 7-9, 2016: "Scaling Up: What Happens When You Go Big?"



Health Care Variation in Europe and Asia: What do we know and what does it mean?

David C. Goodman, MD MS

October 2015 | International Perspectives on Health Systems



1973 - Hospital Service Areas in Vermont
John E. Wennberg and Alan Gittelsohn

Small Area Variations in Health Care Delivery

A population-based health information system can guide planning and regulatory decision-making.

John Wennberg and Alan Gittelsohn

Recent legislation has extended planning and regulatory authority in the health field in a number of important areas. The 1972 amendments to the Social Security Act provide authority for regulating the construction of facilities and establish Professional Standard Review Organizations (PSRO's), which are accountable for setting standards and evaluating professional performance. Phase 3 of the Wage and Stabilization Act of 1970 and state insurance commissions provide authority for regulating dollar flow by controlling

impact of regulatory decisions on the equality of distribution of resources and dollars and the effectiveness of medical care services.

For technical and organizational reasons, documentation of the health care experience of populations has been restricted to large political jurisdictions such as counties, states, or nations. Studies at this level of aggregation have used indicators that support direct comparisons among areas. Relationships between the supply of manpower, facilities, and expenditures and

twice as high in California as in Arkansas. The number of physicians per thousand persons has been up to three times higher in some states than in others. International comparisons and studies of regions within states show that there are large differences in the rate of delivery of specific surgical procedures (1).

In 1969, there was implemented in the state of Vermont a data system that monitors aspects of health care delivery in each of the 251 towns of the state. When the population of the state is grouped into 13 geographically distinct hospital catchment, or service, areas, variations in health care are often more apparent than they are when the population is divided into fewer, larger areas. Population rates can be used to make direct statistical comparisons between each of the 13 hospital service areas. Since the medical care in each area is delivered predominantly by local physicians, variations tend to reflect differences in the way particular individuals and groups practice medicine. The specificity of the information in Vermont's data system makes it possible to appraise the impact that decisions controlling facility construction, price of insurance, and

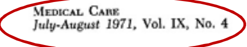
Fig. 1. Map of Vermont showing minor civil divisions, the Vermont town (lighter line). Darker line shows boundaries of hospital service areas. Circles represent hospitals. Areas without circles are served principally by hospitals in New Hampshire.

Wennberg J, Gittelsohn A. Small area variations in health care delivery. Science 1973;182:1102-8.

tdi.dartmouth.edu

And the rest of the world?

Appendectomy in the Federal Republic of Germany
Lichtner and Pflanz, *Medical Care*, 1971



MEDICAL CARE
July-August 1971, Vol. IX, No. 4

Appendectomy in the Federal Republic of Germany: Epidemiology and Medical Care Patterns

SIGRID LICHTNER,* AND MANFRED PFLANZ, M.D.†

The mortality rate for appendicitis is three to four times higher in the Federal Republic of Germany than in any other country. The appendectomy rate among local sick-fund insured persons, in the Federal Army, and among the population of the city of Hannover, is two to three times higher in Germany than in other comparable countries. The incidence is three times higher in white collar workers than in blue collar workers. The appendectomy rate varies from one residential area of the city to another. While seasonal variations in incidence are very small, there are considerable differences between the days of the week. While the patient who has an appendectomy in the Federal Republic of Germany stays in the hospital almost twice as long, the total sick leave is slightly shorter than in the United States.

KISCH, ET AL.[15] concluded their recently published study, "An Epidemiological Approach to the Study of the Incidence of Surgical Procedures," by remarking:

We hope that the study will stimulate a

mainly because both appendectomy and appendicitis seem to be less susceptible to diagnostic misinterpretation than are other diseases. While this is in fact true for appendectomy, it does not apply to appendi-

Distribution of Appendectomy by City Districts in Hannover.

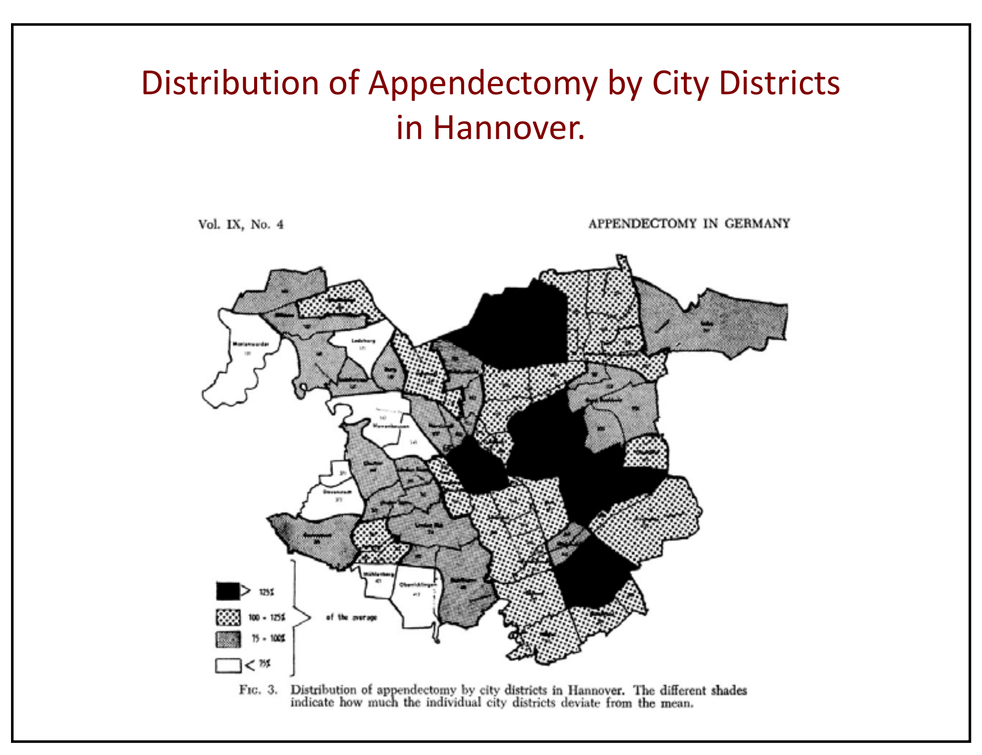


FIG. 3. Distribution of appendectomy by city districts in Hannover. The different shades indicate how much the individual city districts deviate from the mean.

Merkwürdige Krankheit
(Strange Disease)

"In den deutschsprachigen Ländern sterben drei- bis viermal so viele Menschen an Blinddarmentzündung wie in allen übrigen Ländern der Welt".

"In der Bundesrepublik und in der DDR. in West-Berlin und Österreich kommt Blinddarmentzündung zwei- bis dreimal öfter vor als sonst auf der Welt, die Todesrate ist sogar drei- bis viermal höher -- eine "erstaunliche Tatsache", wie Professor Manfred Pflanz, Chef des Instituts für Epidemiologie und Sozialmedizin der Medizinischen Hochschule Hannover, und seine Doktorandin Sigrid Lichtner herausfanden."

What countries are interested in health care variation?

Toronto

London School of Economics and Political Science

University of Bern
Switzerland

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Contents lists available at ScienceDirect

Health Policy

journal homepage: www.elsevier.com/locate/healthpol

ELSEVIER

A systematic review of medical practice variation in OECD countries

Ashley N. Corallo[a], Ruth Croxford[a], David C. Goodman[b], Elisabeth L. Bryan[b], Divya Srivastava[c], Therese A. Stukel[a,b,d,*]

[a] Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada
[b] The Dartmouth Institute for Health Policy and Clinical Practice, Dartmouth Medical School, Hanover, NH, USA
[c] Organisation for Economic Cooperation and Development, Paris, France
[d] Institute of Health Policy, Management and Evaluation, University of Toronto, Toronto, Ontario, Canada

ARTICLE INFO

Article history:

ABSTRACT

Background: Major variations in medical practice have been document

Systematic review of medical practice variation in OECD countries

Corallo A, Coxford R, Goodman D, Bryan E, Srivatava D, Stukel T.
Health Policy 2013.

	Number of studies	Percent
United States	319	38
United Kingdom	123	15
Canada	111	13
Australia/N.Z.	53	6
Netherlands	22	3
Denmark	13	2
Germany	13	2
Sweden	12	1
Spain	11	1
Switzerland	11	1
Japan	10	1
France	10	1

	Number of studies	Percent
Norway	8	1
Ireland	8	1
Italy	7	>1
Finland	6	>1
Belgium	3	>1
Austria	2	>1
Estonia	1	>1
Greece	1	>1
Hungary	1	>1
Portugal	1	>1

Published during period 2000 – 2011.

What do most countries lag in measuring and understanding variation in health system performance?

- There are few places to learn the ideas and methods.
- Most studies are descriptive and do not investigate the causes of variation.
- Without ideas of causation, the results have limited use in remediating problems.
- Measurement and public reporting makes powerful stakeholders very nervous.

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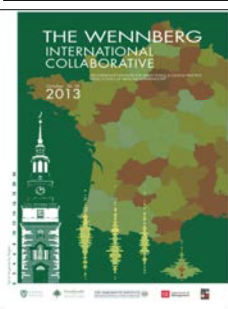
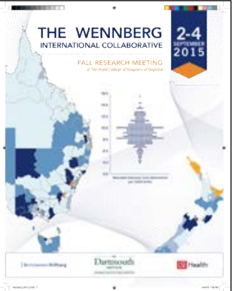
The Wennberg International Collaborative 2010





WIC Attendees

Fall research meetings	
2010	27
2011	45
2012	52
2013 (Dartmouth)	91
2014	69
2015	80
Spring policy meeting	
2015 Berlin	165

Australia	Kosovo
Canada	Netherlands
Czech Republic	New Zealand
Denmark	Norway
England	The OECD
Finland	Peru
France	Portugal
Germany	Romania
Hungary	Slovenia
Ireland	Spain
Italy	Sweden
Japan	Switzerland
Korea	Turkey
	United States

Some Examples

The Third English NHS Atlas

Public Health England

NHS England

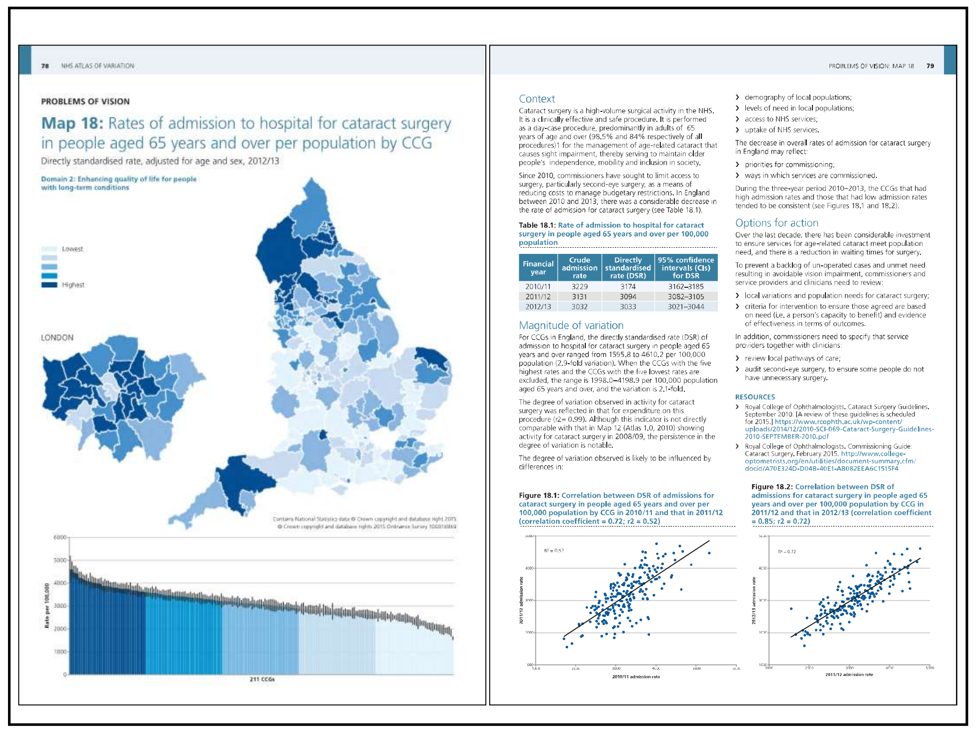
September 2015

The NHS Atlas of Variation in Healthcare

Reducing unwarranted variation to increase value and improve quality

RightCare

www.rightcare.nhs.uk



78 NHS ATLAS OF VARIATION

PROBLEMS OF VISION

Map 18: Rates of admission to hospital for cataract surgery in people aged 65 years and over per population by CCG

Directly standardised rate, adjusted for age and sex, 2012/13

Domain 2: Enhancing quality of life for people with long-term conditions

PROBLEMS OF VISION: MAP 18 79

Context

Cataract surgery is a high-volume surgical activity in the NHS. It is a clinically effective and safe procedure. It is performed as a day-case procedure, predominantly in adults of 65 years of age and over (98.5% and 84% respectively of all procedures)1 for the management of age-related cataract that causes sight impairment, thereby serving to maintain older people's independence, mobility and inclusion in society.

Since 2010, commissioners have sought to limit access to surgery, particularly second-eye surgery, as a means of reducing costs to manage budgetary restrictions. In England between 2010 and 2013, there was a considerable decrease in the rate of admission for cataract surgery (see Table 18.1).

Table 18.1: Rate of admission to hospital for cataract surgery in people aged 65 years and over per 100,000 population

Financial year	Crude admission rate	Directly standardised rate (DSR)	95% confidence intervals (CIs) for DSR
2010/11	3229	3174	3162–3185
2011/12	3131	3094	3082–3105
2012/13	3032	3033	3021–3044

Magnitude of variation

For CCGs in England, the directly standardised rate (DSR) of admission to hospital for cataract surgery in people aged 65 years and over ranged from 1595.8 to 4610.2 per 100,000 population (2.9-fold variation). When the CCGs with the five highest rates and the CCGs with the five lowest rates are excluded, the range is 1998.0–4198.9 per 100,000 population aged 65 years and over, and the variation is 2.1-fold.

The degree of variation observed in activity for cataract surgery was reflected in that for expenditure on this procedure (r2= 0.99). Although this indicator is not directly comparable with that in Map 12 (Atlas 1.0, 2010) showing activity for cataract surgery in 2008/09, the persistence in the degree of variation is notable.

The degree of variation observed is likely to be influenced by differences in:

- demography of local populations;
- levels of need in local populations;
- access to NHS services;
- uptake of NHS services.

The decrease in overall rates of admission for cataract surgery in England may reflect:

- priorities for commissioning;
- ways in which services are commissioned.

During the three-year period 2010–2013, the CCGs that had high admission rates and those that had low admission rates tended to be consistent (see Figures 18.1 and 18.2).

Options for action

Over the last decade, there has been considerable investment to ensure services for age-related cataract meet population need, and there is a reduction in waiting times for surgery.

To prevent a backlog of un-operated cases and unmet need resulting in avoidable vision impairment, commissioners and service providers and clinicians need to review:

- local variations and population needs for cataract surgery;
- criteria for intervention to ensure those agreed are based on need (i.e. a person's capacity to benefit) and evidence of effectiveness in terms of outcomes.

In addition, commissioners need to specify that service providers together with clinicians:

- review local pathways of care;
- audit second-eye surgery, to ensure some people do not have unnecessary surgery.

RESOURCES

- Royal College of Ophthalmologists. Cataract Surgery Guidelines. September 2010. [A review of these guidelines is scheduled for 2015.] https://www.rcophth.ac.uk/wp-content/uploads/2014/12/2010-SCI-069-Cataract-Surgery-Guidelines-2010-SEPTEMBER-2010.pdf
- Royal College of Ophthalmologists. Commissioning Guide: Cataract Surgery. February 2015. http://www.college-optometrists.org/en/utilities/document-summary.cfm/docid/A70E324D-D04B-40E1-AB082EEA6C1515F4

Figure 18.1: Correlation between DSR of admissions for cataract surgery in people aged 65 years and over per 100,000 population by CCG in 2010/11 and that in 2011/12 (correlation coefficient = 0.72; r2 = 0.52)

Figure 18.2: Correlation between DSR of admissions for cataract surgery in people aged 65 years and over per 100,000 population by CCG in 2011/12 and that in 2012/13 (correlation coefficient = 0.85; r2 = 0.72)

How are the Dartmouth Theories of Causation Viewed?

Category	Cause	Consequence	Remedy
Unwarranted variation			
Evidence-based care	Clinician decisions ≠ science	Lower probability of good outcomes	Clinical microsystem improvements
Preference sensitive care	Provider-driven decisions; patients uninformed and not involved in decisions	Pt. doesn't receive preferred care: the care with highest individual pt. utility	Shared decision making, decisions aids. Better outcomes research. Research in decision quality.
Supply sensitive care	Capacity that is idiosyncratically located and poorly related to outcomes	Higher resource use with marginal or no patient benefit	Wiser capital and labor investments in health care.
Desired State: Warranted variation			
Care in response to differences in patient needs and preferences	Application of evidence-based medicine and Shared Decision Making	Better outcomes, including higher decision quality, and often lower costs	

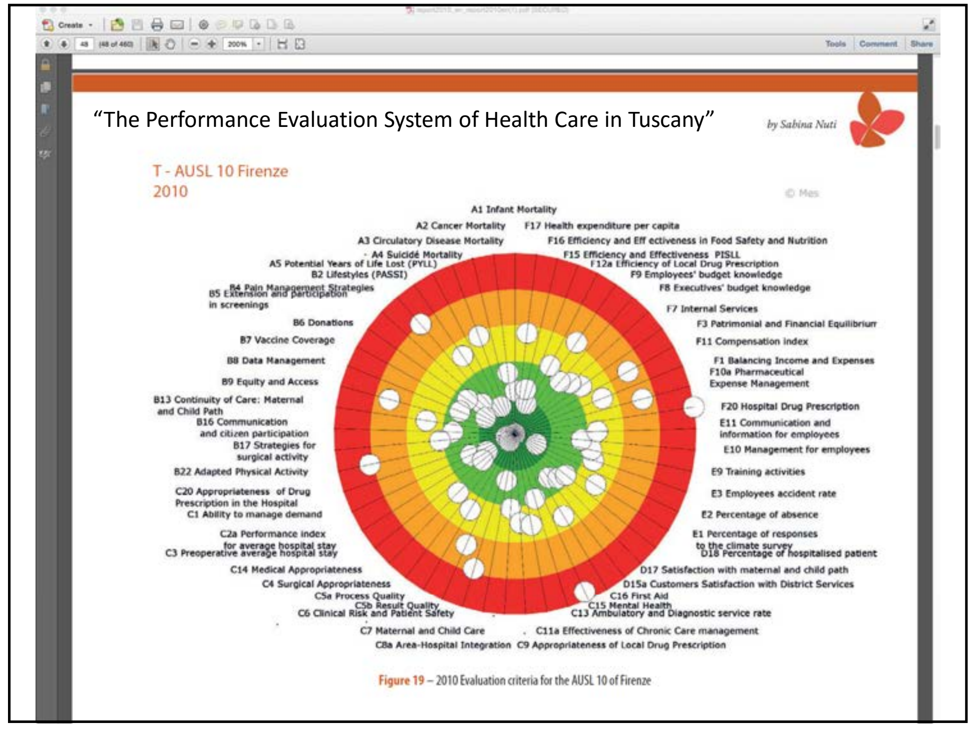
Tuscany Region

Scuola Superiore Sant'Anna of Pisa

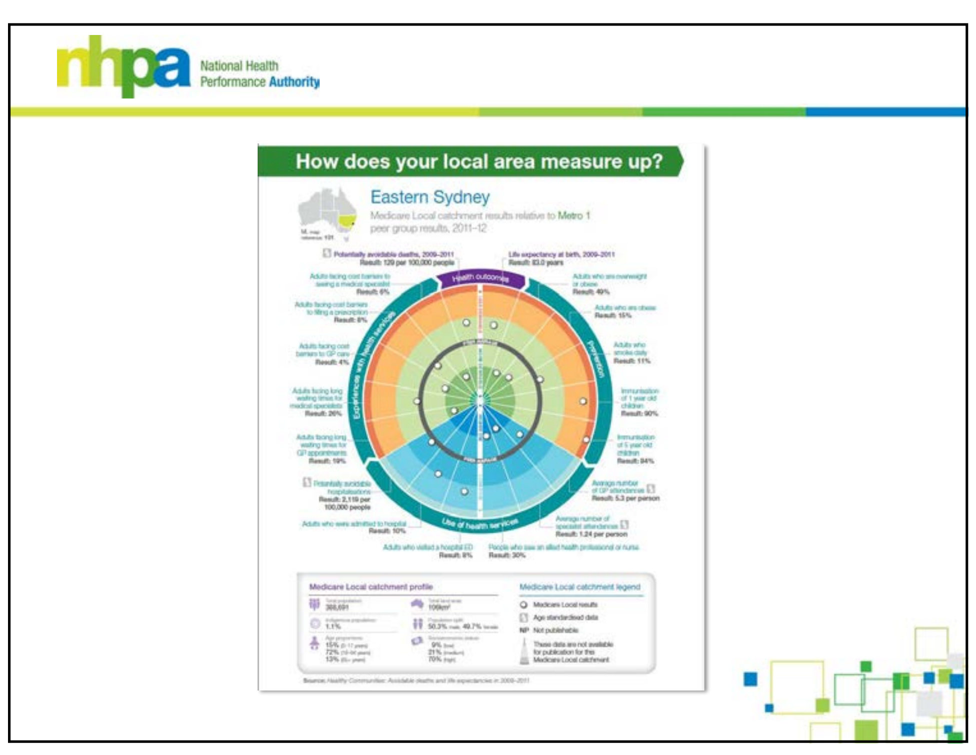
Istituto di Management

Laboratorio Management e Sanità

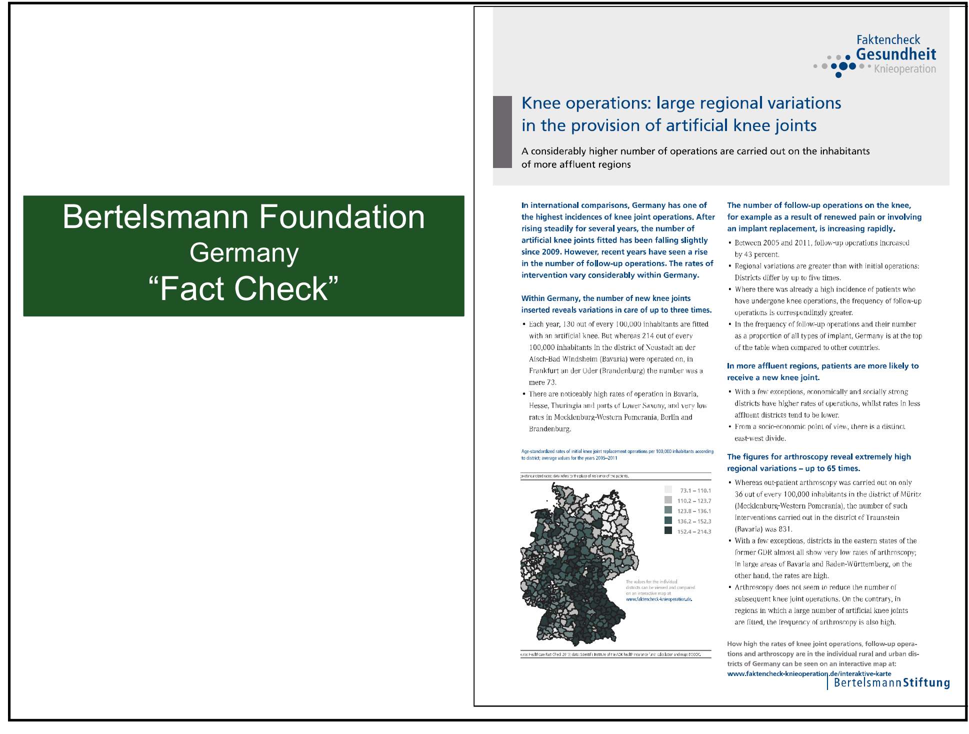
The Performance Evaluation System of Health Care in Tuscany



“The Performance Evaluation System of Health Care in Tuscany”
by Sabina Nuti
T - AUSL 10 Firenze
2010
© Mes
A1 Infant Mortality
A2 Cancer Mortality
A3 Circulatory Disease Mortality
A4 Suicide Mortality
A5 Potential Years of Life Lost (PYLL)
B2 Lifestyles (PASSI)
B4 Pain Management Strategies
B5 Extension and participation in screenings
B6 Donations
B7 Vaccine Coverage
B8 Data Management
B9 Equity and Access
B13 Continuity of Care: Maternal and Child Path
B16 Communication and citizen participation
B17 Strategies for surgical activity
B22 Adapted Physical Activity
C20 Appropriateness of Drug Prescription in the Hospital
C1 Ability to manage demand
C2a Performance index for average hospital stay
C3 Preoperative average hospital stay
C14 Medical Appropriateness
C4 Surgical Appropriateness
C5a Process Quality
C5b Result Quality
C6 Clinical Risk and Patient Safety
C7 Maternal and Child Care
C8a Area-Hospital Integration
C9 Appropriateness of Local Drug Prescription
C11a Effectiveness of Chronic Care management
C13 Ambulatory and Diagnostic service rate
C15 Mental Health
C16 First Aid
D15a Customers Satisfaction with District Services
D17 Satisfaction with maternal and child path
D18 Percentage of hospitalised patient
E1 Percentage of responses to the climate survey
E2 Percentage of absence
E3 Employees accident rate
E9 Training activities
E10 Management for employees
E11 Communication and information for employees
F20 Hospital Drug Prescription
F1 Balancing Income and Expenses
F10a Pharmaceutical Expense Management
F11 Compensation index
F3 Patrimonial and Financial Equilibrium
F7 Internal Services
F8 Executives' budget knowledge
F9 Employees' budget knowledge
F12a Efficiency of Local Drug Prescription
F15 Efficiency and Effectiveness PISLL
F16 Efficiency and Eff ectiveness in Food Safety and Nutrition
F17 Health expenditure per capita
Figure 19 – 2010 Evaluation criteria for the AUSL 10 of Firenze



nhpa National Health Performance Authority
How does your local area measure up?
Eastern Sydney
Medicare Local catchment results relative to Metro 1 peer group results, 2011–12
Health outcomes
Prevention
Use of health services
Experiences with health services
Medicare Local catchment profile
Medicare Local catchment legend



Faktencheck Gesundheit Knieoperation

Knee operations: large regional variations in the provision of artificial knee joints

A considerably higher number of operations are carried out on the inhabitants of more affluent regions

In international comparisons, Germany has one of the highest incidences of knee joint operations. After rising steadily for several years, the number of artificial knee joints fitted has been falling slightly since 2009. However, recent years have seen a rise in the number of follow-up operations. The rates of intervention vary considerably within Germany.

Within Germany, the number of new knee joints inserted reveals variations in care of up to three times.

- Each year, 130 out of every 100,000 inhabitants are fitted with an artificial knee. But whereas 214 out of every 100,000 inhabitants in the district of Neustadt an der Aisch-Bad Windsheim (Bavaria) were operated on, in Frankfurt an der Oder (Brandenburg) the number was a mere 73.
- There are noticeably high rates of operation in Bavaria, Hesse, Thuringia and parts of Lower Saxony, and very low rates in Mecklenburg-Western Pomerania, Berlin and Brandenburg.

Age-standardized rates of initial knee joint replacement operations per 100,000 inhabitants according to district; average values for the years 2005–2011

73.1 – 110.1
110.2 – 123.7
123.8 – 136.1
136.2 – 152.3
152.4 – 214.3

The number of follow-up operations on the knee, for example as a result of renewed pain or involving an implant replacement, is increasing rapidly.

- Between 2005 and 2011, follow-up operations increased by 43 percent.
- Regional variations are greater than with initial operations: Districts differ by up to five times.
- Where there was already a high incidence of patients who have undergone knee operations, the frequency of follow-up operations is correspondingly greater.
- In the frequency of follow-up operations and their number as a proportion of all types of implant, Germany is at the top of the table when compared to other countries.

In more affluent regions, patients are more likely to receive a new knee joint.

- With a few exceptions, economically and socially strong districts have higher rates of operations, whilst rates in less affluent districts tend to be lower.
- From a socio-economic point of view, there is a distinct east-west divide.

The figures for arthroscopy reveal extremely high regional variations – up to 65 times.

- Whereas out-patient arthroscopy was carried out on only 36 out of every 100,000 inhabitants in the district of Müritz (Mecklenburg-Western Pomerania), the number of such interventions carried out in the district of Traunstein (Bavaria) was 831.
- With a few exceptions, districts in the eastern states of the former GDR almost all show very low rates of arthroscopy; in large areas of Bavaria and Baden-Württemberg, on the other hand, the rates are high.
- Arthroscopy does not seem to reduce the number of subsequent knee joint operations. On the contrary, in regions in which a large number of artificial knee joints are fitted, the frequency of arthroscopy is also high.

How high the rates of knee joint operations, follow-up operations and arthroscopy are in the individual rural and urban districts of Germany can be seen on an interactive map at: www.faktencheck-knieoperation.de/interaktive-karte

BertelsmannStiftung

Research papers

Busato *et al. BMC Health Services Research* 2010, **10**:315
http://www.biomedcentral.com/1472-6963/10/315

BMC Health Services Research

RESEARCH ARTICLE Open Access

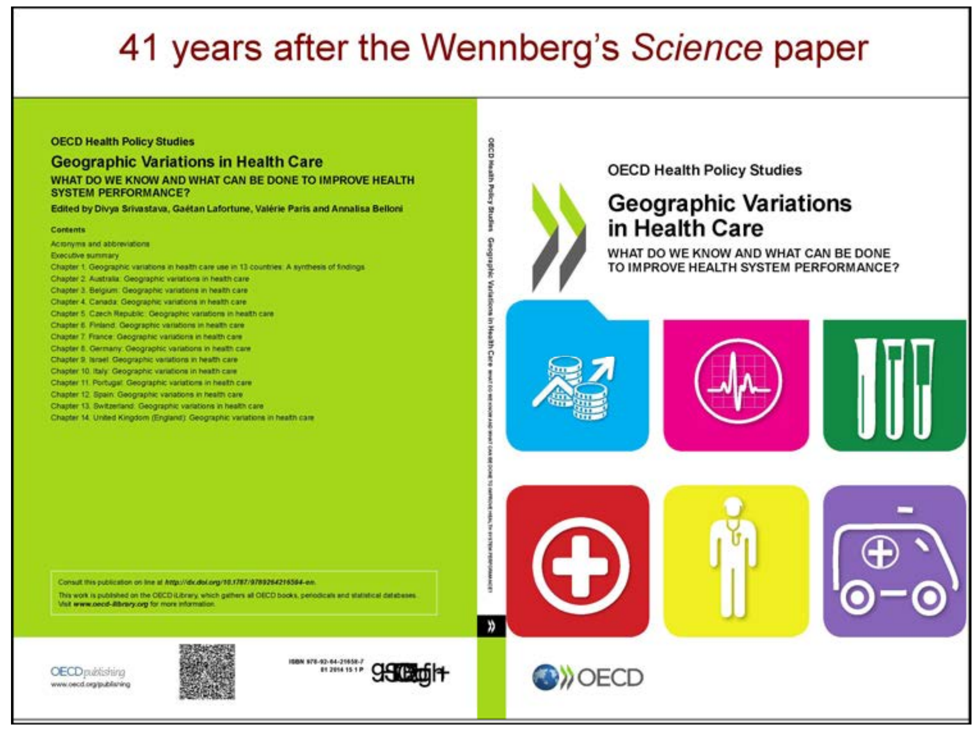
Supply sensitive services in Swiss ambulatory care: An analysis of basic health insurance records for 2003-2007

André Busato[1*], Pius Matter[2], Beat Künzi[3], David C Goodman[4]

Abstract

Background: Swiss ambulatory care is characterized by independent, and primarily practice-based, physicians, receiving fee for service reimbursement. This study analyses supply sensitive services using ambulatory care claims data from mandatory health insurance. A first research question was aimed at the hypothesis that physicians with large patient lists decrease their intensity of services and bill less per patient to health insurance, and vice versa: physicians with smaller patient lists compensate for the lack of patients with additional visits and services. A second research question relates to the fact that several cantons are allowing physicians to directly dispense drugs to patients ('self-dispensation') whereas other cantons restrict such direct sales to emergencies only. This second question was based on the assumption that patterns of rescheduling patients for consultations may differ across channels of dispensing prescription drugs and therefore the hypothesis of different consultation costs in this context was investigated.

Methods: Complete claims data paid for by mandatory health insurance of all Swiss physicians in own practices were analyzed for the years 2003-2007. Medical specialties were pooled into six main provider types in ambulatory


41 years after the Wennberg's Science paper
OECD Health Policy Studies
Geographic Variations in Health Care
WHAT DO WE KNOW AND WHAT CAN BE DONE TO IMPROVE HEALTH SYSTEM PERFORMANCE?
Edited by Divya Srivastava, Gaétan Lafortune, Valérie Paris and Annalisa Belloni
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Chapter 2. Australia: Geographic variations in health care
Chapter 3. Belgium: Geographic variations in health care
Chapter 4. Canada: Geographic variations in health care
Chapter 5. Czech Republic: Geographic variations in health care
Chapter 6. Finland: Geographic variations in health care
Chapter 7. France: Geographic variations in health care
Chapter 8. Germany: Geographic variations in health care
Chapter 9. Israel: Geographic variations in health care
Chapter 10. Italy: Geographic variations in health care
Chapter 11. Portugal: Geographic variations in health care
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Chapter 14. United Kingdom (England): Geographic variations in health care
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OECD Health Policy Studies
Geographic Variations in Health Care
WHAT DO WE KNOW AND WHAT CAN BE DONE TO IMPROVE HEALTH SYSTEM PERFORMANCE?
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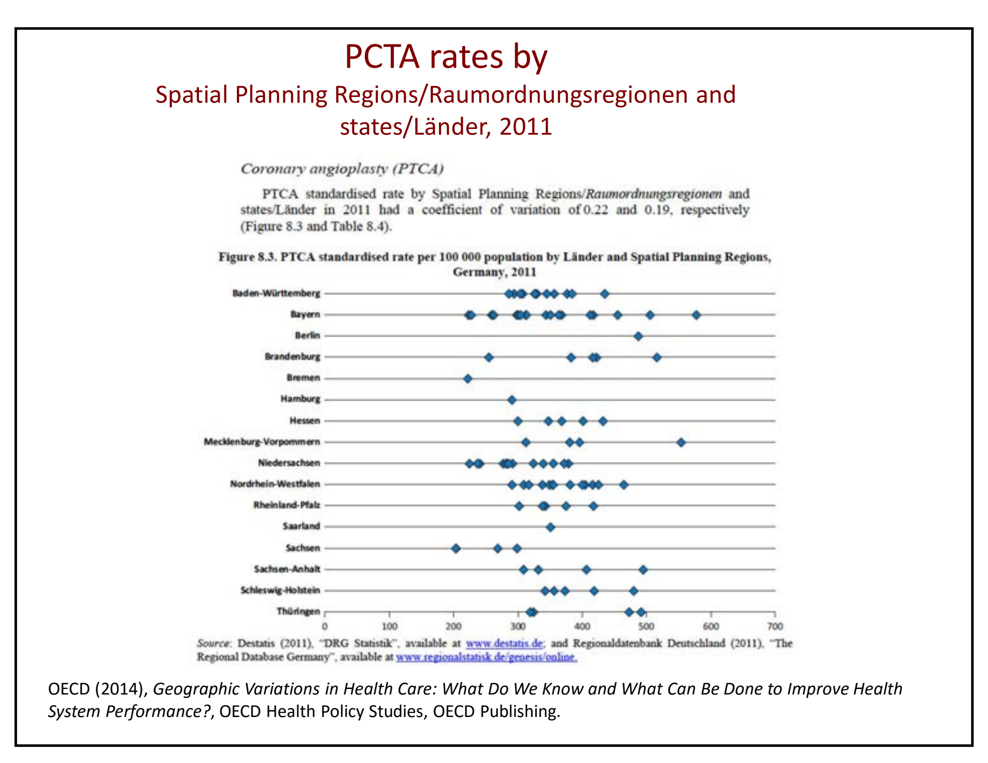
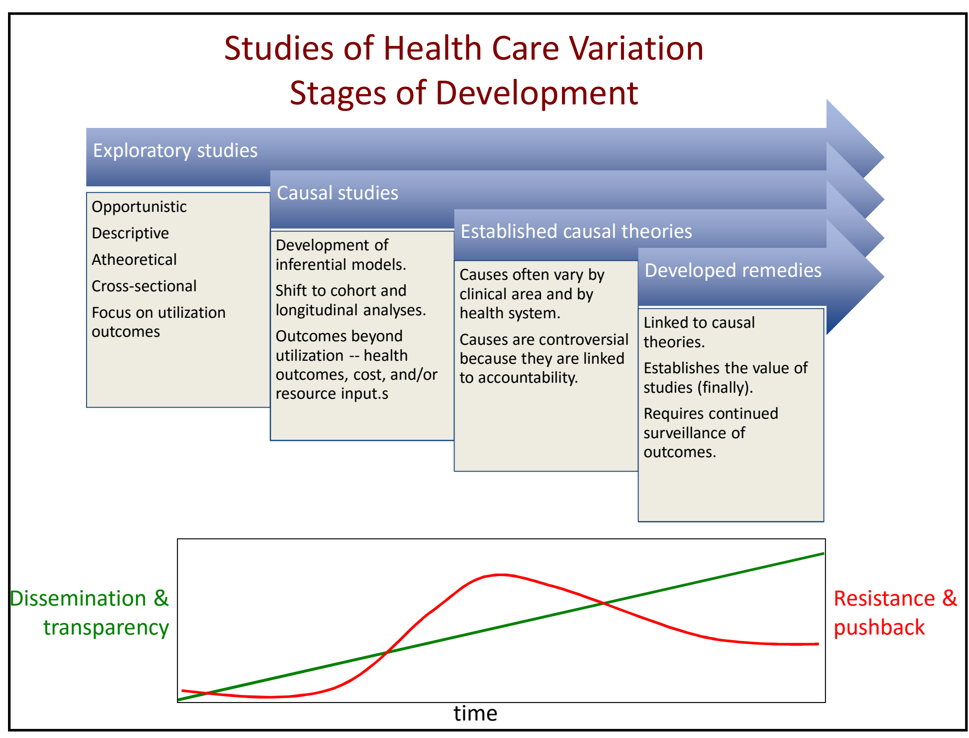

PCTA rates by
Spatial Planning Regions/Raumordnungsregionen and states/Länder, 2011
Coronary angioplasty (PTCA)
PTCA standardised rate by Spatial Planning Regions/Raumordnungsregionen and states/Länder in 2011 had a coefficient of variation of 0.22 and 0.19, respectively (Figure 8.3 and Table 8.4).
Figure 8.3. PTCA standardised rate per 100 000 population by Länder and Spatial Planning Regions, Germany, 2011
Baden-Württemberg
Bayern
Berlin
Brandenburg
Bremen
Hamburg
Hessen
Mecklenburg-Vorpommern
Niedersachsen
Nordrhein-Westfalen
Rheinland-Pfalz
Saarland
Sachsen
Sachsen-Anhalt
Schleswig-Holstein
Thüringen
0
100
200
300
400
500
600
700
Source: Destatis (2011), "DRG Statistik", available at www.destatis.de; and Regionaldatenbank Deutschland (2011), "The Regional Database Germany", available at www.regionalstatistik.de/genesis/online.
OECD (2014), Geographic Variations in Health Care: What Do We Know and What Can Be Done to Improve Health System Performance?, OECD Health Policy Studies, OECD Publishing.


Studies of Health Care Variation
Stages of Development
Exploratory studies
Opportunistic
Descriptive
Atheoretical
Cross-sectional
Focus on utilization outcomes
Causal studies
Development of inferential models.
Shift to cohort and longitudinal analyses.
Outcomes beyond utilization -- health outcomes, cost, and/or resource input.s
Established causal theories
Causes often vary by clinical area and by health system.
Causes are controversial because they are linked to accountability.
Developed remedies
Linked to causal theories.
Establishes the value of studies (finally).
Requires continued surveillance of outcomes.
Dissemination & transparency
Resistance & pushback
time