The Actuarial Profession
making financial sense of the future

Health & care conference 2011
Sarah Bennett & Joanne Buckle

Global PMI utilisation patterns

Habit or hiatus

19th May 2011

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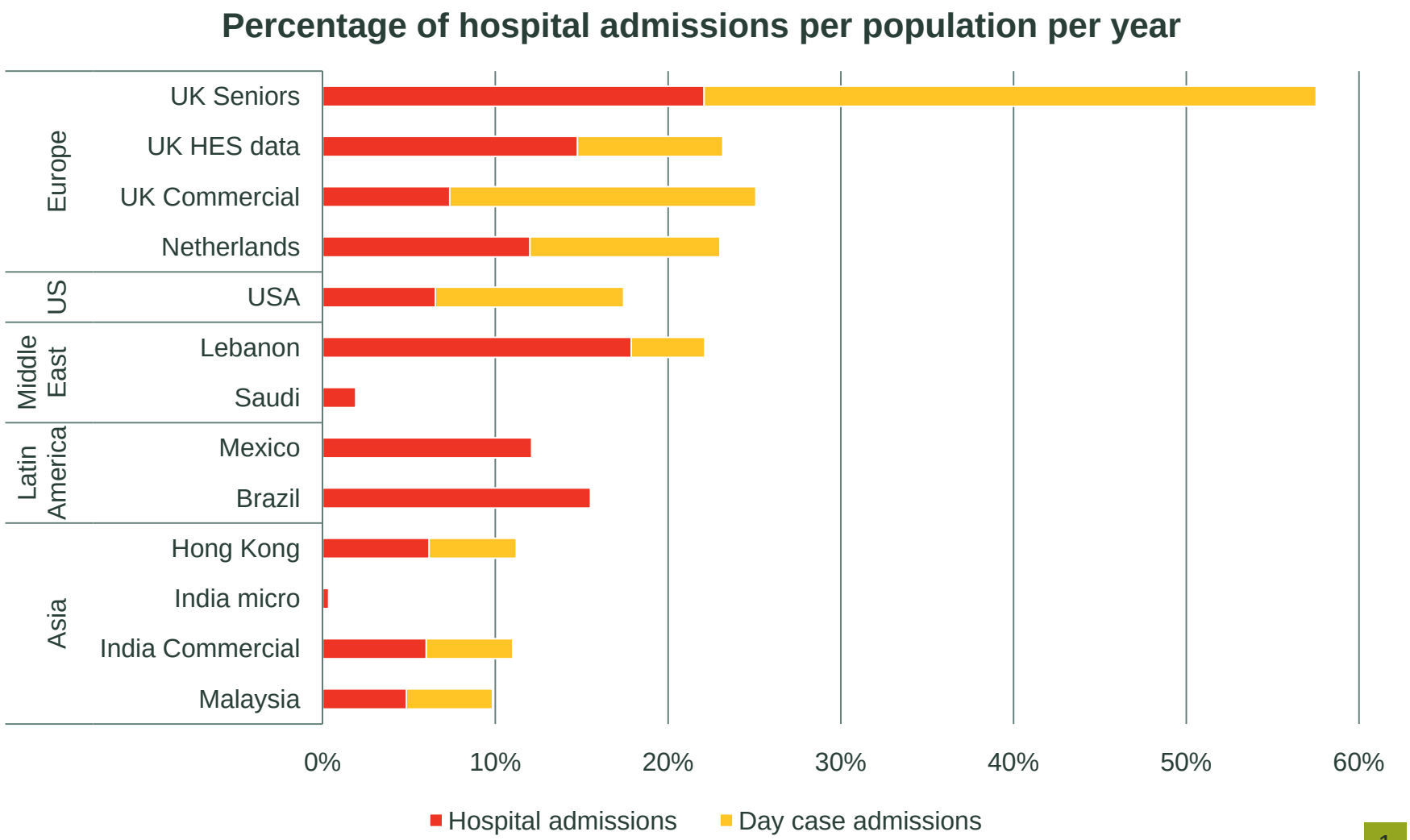
Global PMI utilisation patterns: Habit or hiatus



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Agenda

- Background & context
- Supply side issues
- Utilisation comparisons
- Conclusions
- Questions/Discussion
- Appendix – Country summaries

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Background & Context

- Economic regression model of healthcare utilisation at a macro level
  - Income
  - Education
    - Which are in themselves linked
  - Supply/infrastructure
  - Demographics/health status
- Trend in utilisation tends to depend on
  - Inflation
  - GDP growth (more real GDP growth = higher propensity to spend on healthcare)
  - Technology advances

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Background & Context

- PMI utilisation patterns vary widely across (and within) countries
- Various factors/hypotheses
  - Structure of system/interaction with public system
  - Macroeconomic environment
  - Cultural issues
  - Supply & reimbursement of medical services
  - Benefits available under PMI
  - Political policy
  - Health status/demographics of underlying population
  - Voluntary versus compulsory – anti-selection issues

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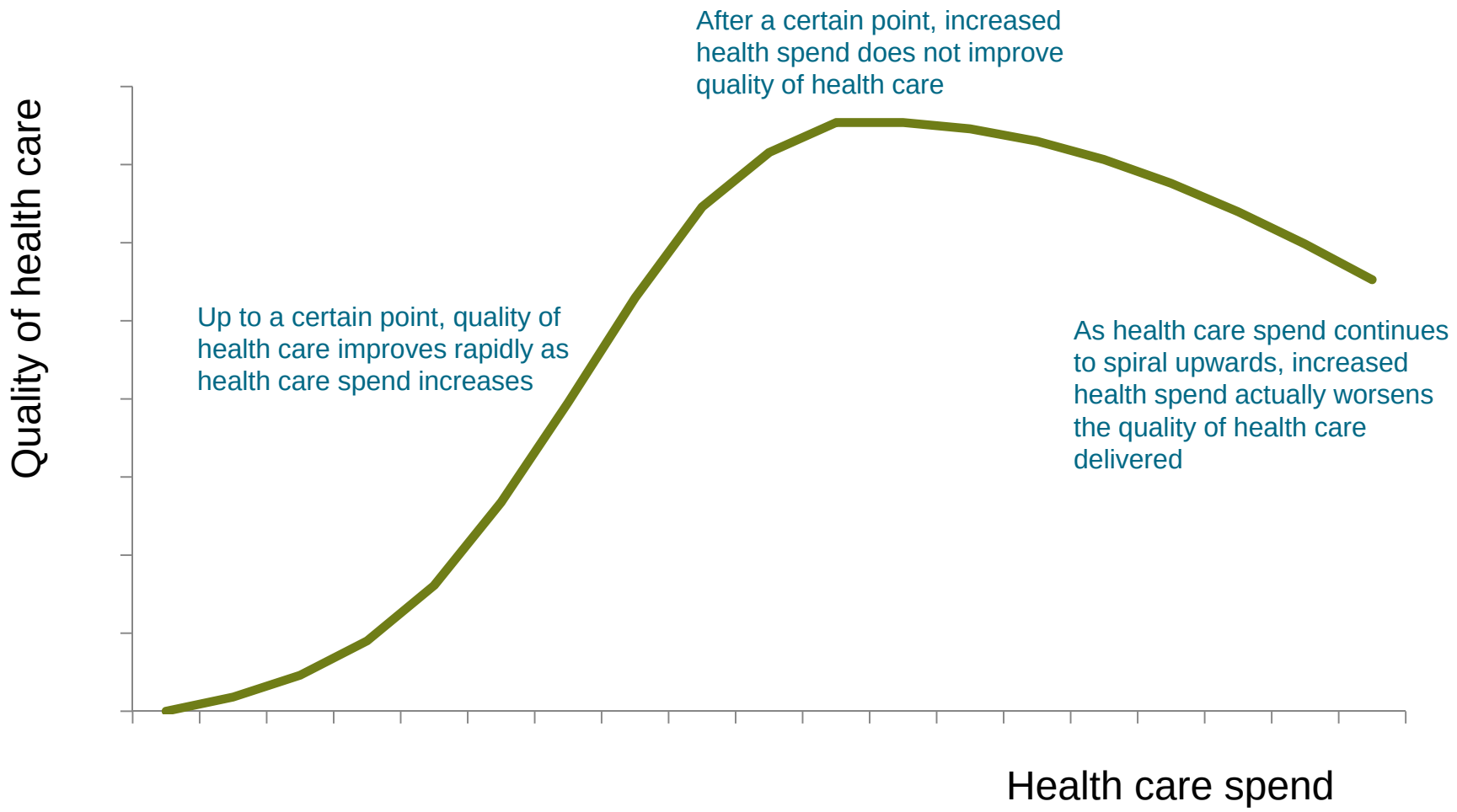
Background & Context
Spend on health care and the impact on quality



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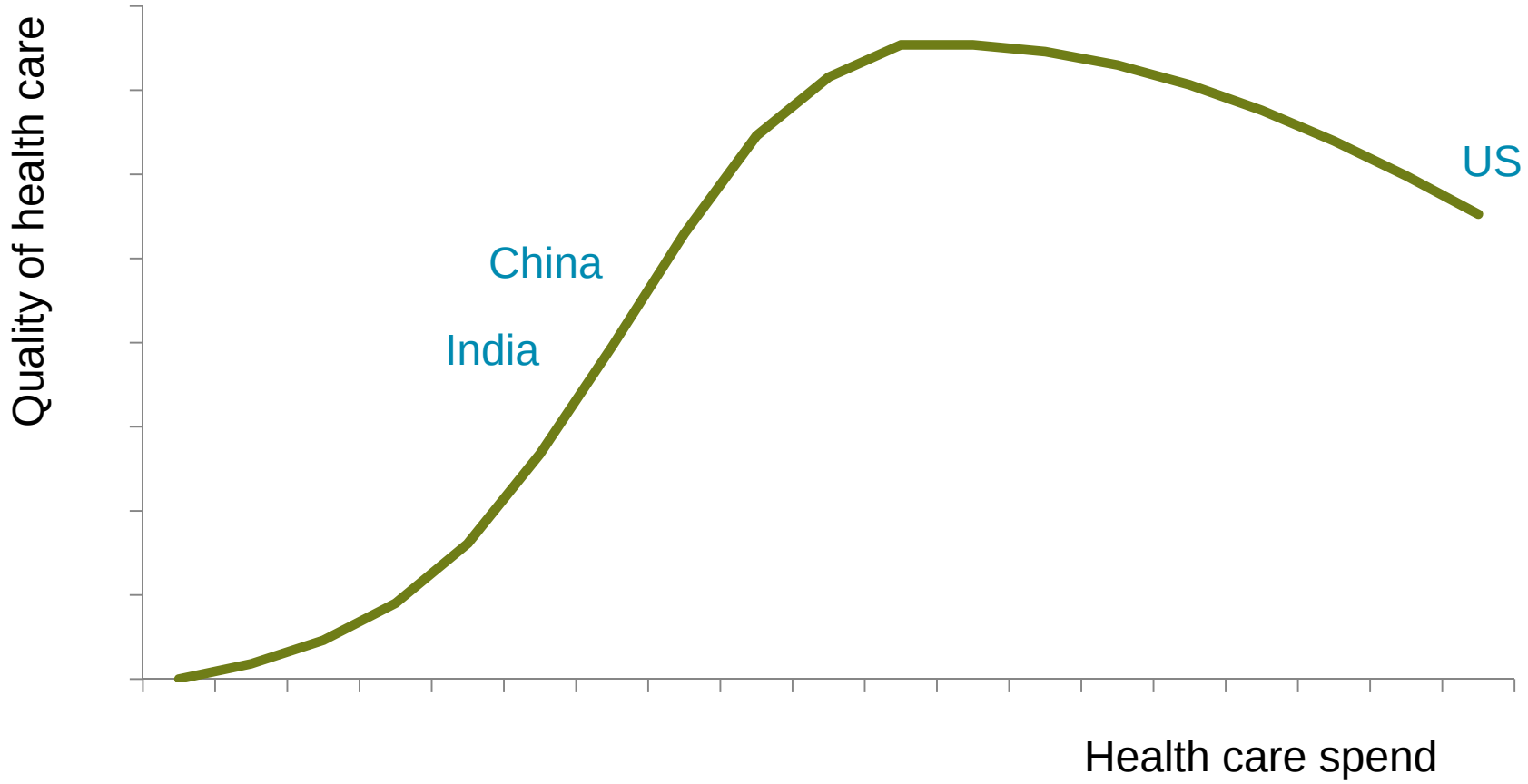
Background & Context
Spend on health care and the impact on quality



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Background & Context
Inefficiencies in the US: very high users

- In the US, one fifth to one third of health care dollars are spent on care that does nothing to improve health
- The number of deaths due to unnecessary care is 30,000 per year in the US (+ ~100,000 per year due to medical error)
- Why so much unnecessary care?

1. Doctors lack evidence to know which treatments and drugs are most effective
2. Doctors lack training to interpret the quality of evidence that's available
3. They overtreat patients out of a desire to help, even if they don't know it's right
4. Malpractice fears drive defensive medicine
5. Medical custom varies remarkably from region to region in the US
6. Most doctors are reimbursed for how much health care they deliver, rather than quality
7. Member induced demand, for example, Generation Rx

Source: "Overtreated: Why too much medicine is making us sicker and poorer" – Sharon Brownlee

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Background & Context
Inefficiencies in the US: Prescription drugs

- Baby boomers
- Generation X
- Generation Y
- Generation Rx

Source: "Overtreated: Why too much medicine is making us sicker and poorer" – Sharon Brownlee

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Background & Context

- Countries we will look at:
  - Europe: UK, Germany, Netherlands
  - USA
  - Asia: India, Malaysia, Hong Kong
  - Middle East: Saudi Arabia, Lebanon, Israel
  - Latin America: Brazil, Mexico

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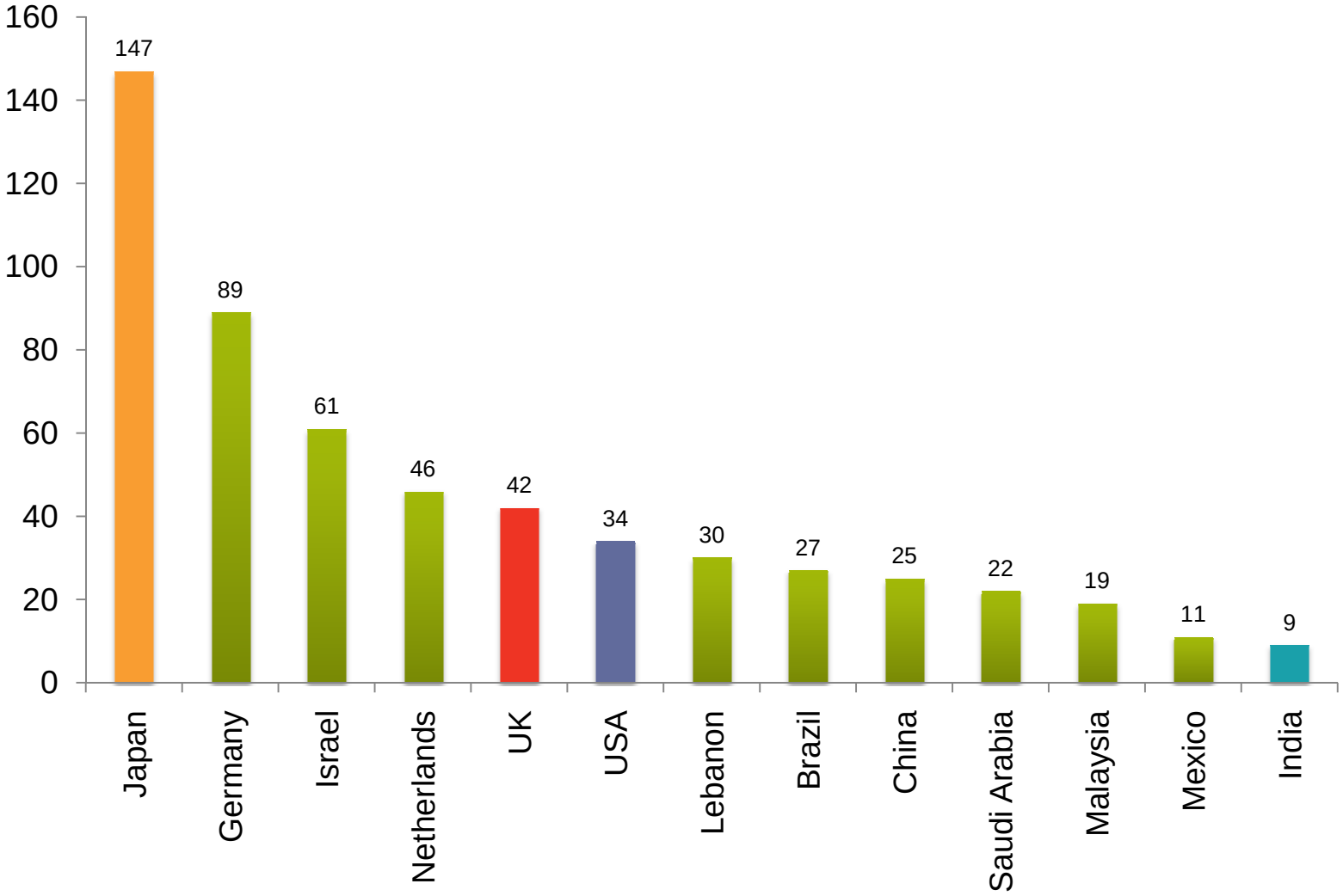
Supply side statistics summary
Number of hospital beds per 10,000 population



Source: World Health Organization, Most Recent Data available

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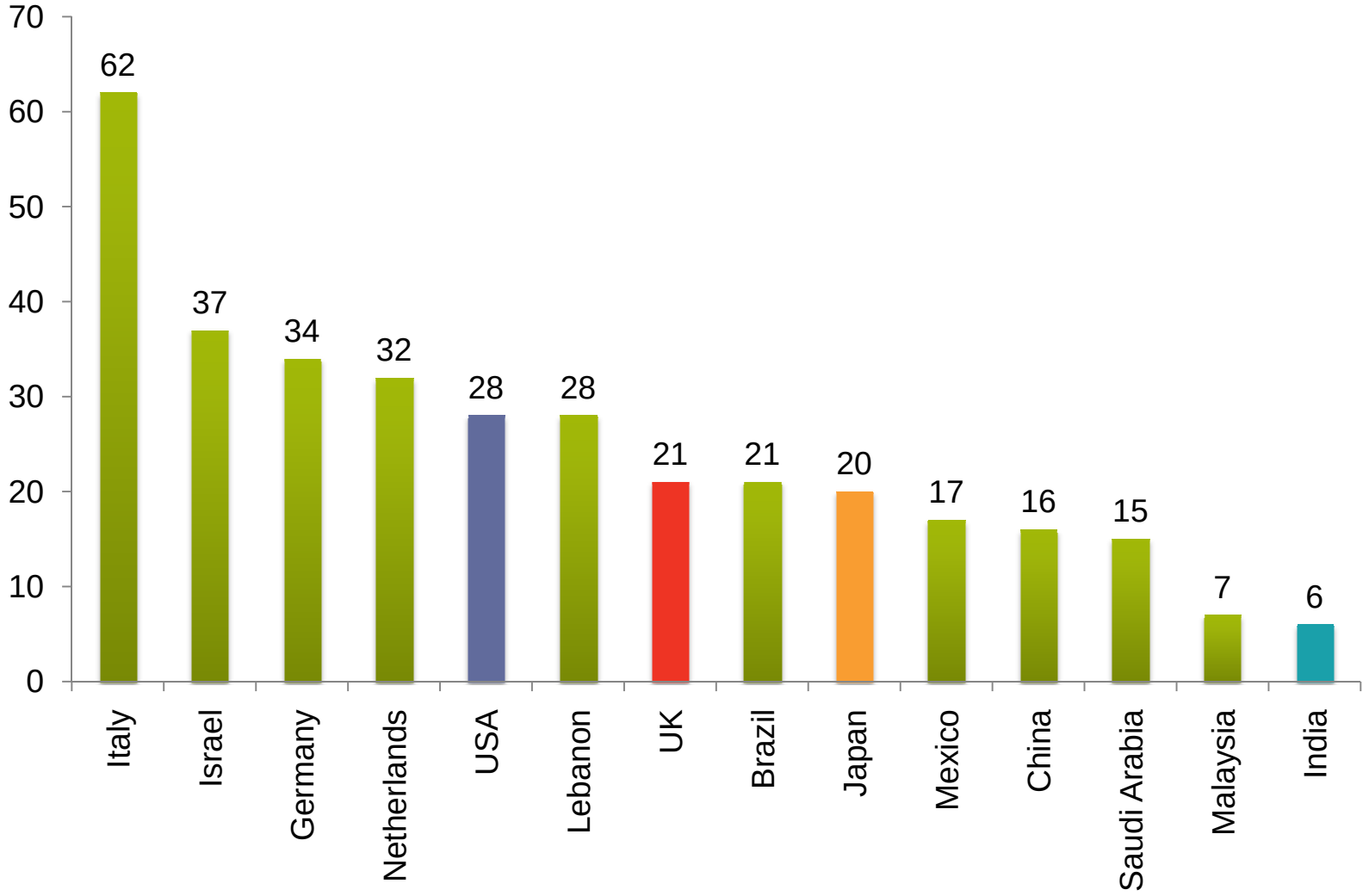
Supply side statistics summary
Number of physicians per 10,000 population



Source: World Health Organization, Most Recent Data available

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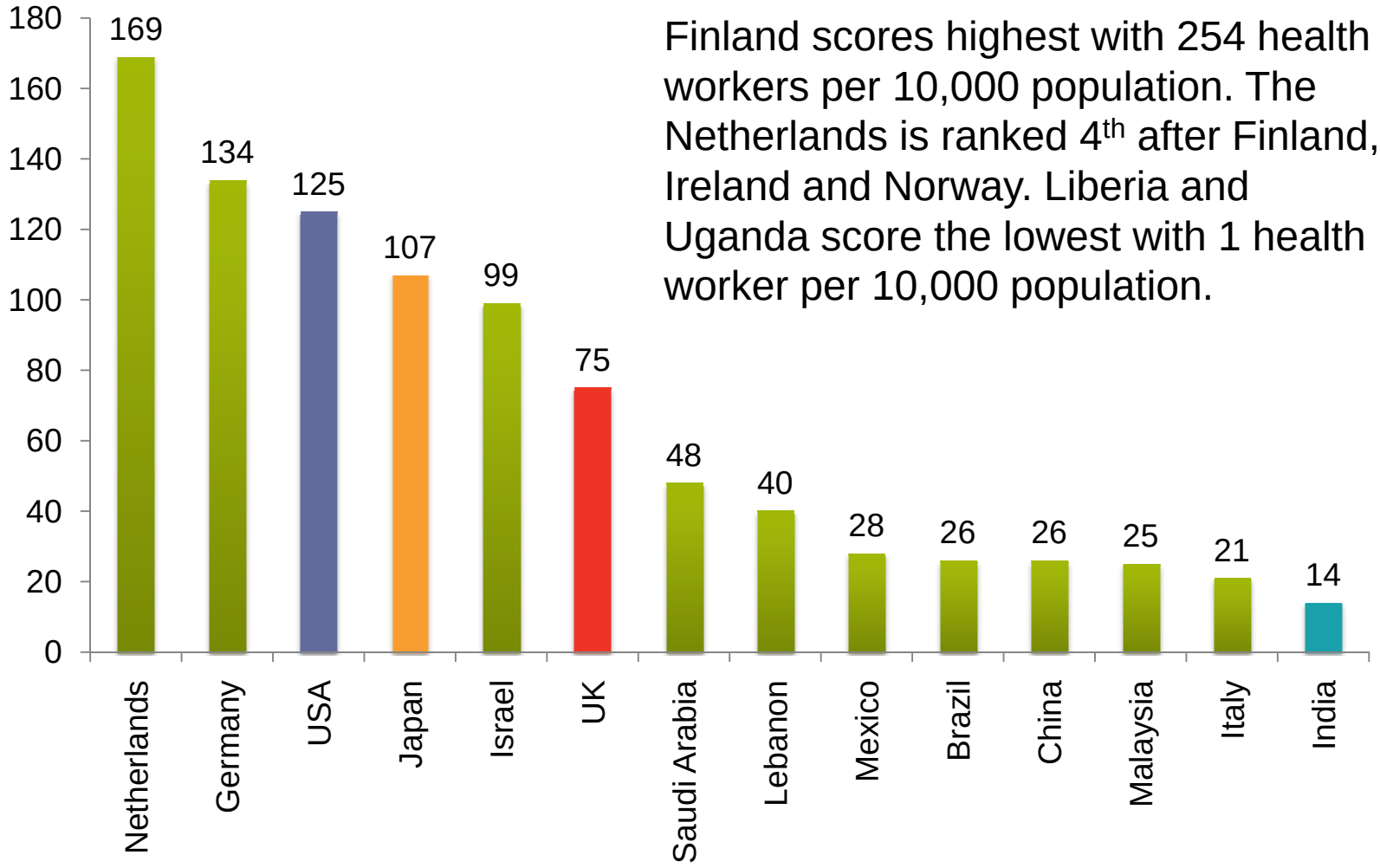
Supply side statistics summary
Number of health workers per 10,000 population



Finland scores highest with 254 health workers per 10,000 population. The Netherlands is ranked 4th after Finland, Ireland and Norway. Liberia and Uganda score the lowest with 1 health worker per 10,000 population.

Source: World Health Organization, Most Recent Data available

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Utilisation comparisons
Data sources

- Milliman *Health Cost Guidelines* (HCGs)
- Swiss Re: data specifically requested from regional offices
- Data requested on utilisation and costs for private insurance
- Data received in a consistent format for 11 countries
- For some countries data for more than one population was received, for example, for the UK we have:

=> population data (HES data)

=> an insured population of seniors

=> a "commercial" insured population (working age)

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Utilisation comparisons
Importance of utilisation (example)

	Average Length of Stay	Utilisation	Cost (USD)	Total Cost (USD)
Hysterectomy	4.7	83	4,300	356,900
C-Section Delivery	4.1	370	2,600	962,000
Normal Delivery	2.9	599	1,600	958,400
Coronary Artery Bypass Graft	9.6	8	22,400	179,200
Angiogram w/o stents	3.9	476	4,700	2,237,200
Angiogram with stents	5.1	96	10,300	988,800
Angiogram with drug-eluting stents	3.9	24	12,700	304,800
Total Hip Replacement	9.3	32	16,900	540,800
Spinal Fusion	6.9	18	13,300	239,400
Arthroscopy	2.2	145	3,500	507,500
Gastroscopy	2.2	1,143	1,400	1,600,200
MRI	8.6	305	6,800	2,074,000
CT	7.3	1,130	6,500	7,345,000
Tonsillectomy	1.9	195	1,300	253,500
Mastectomy	2.7	101	3,500	353,500
		4,725		**18,901,200**

- Total cost = Utilisation x Cost per procedure inclusive
- 5 fold increase in CABG utilisation: 4% increase in total costs

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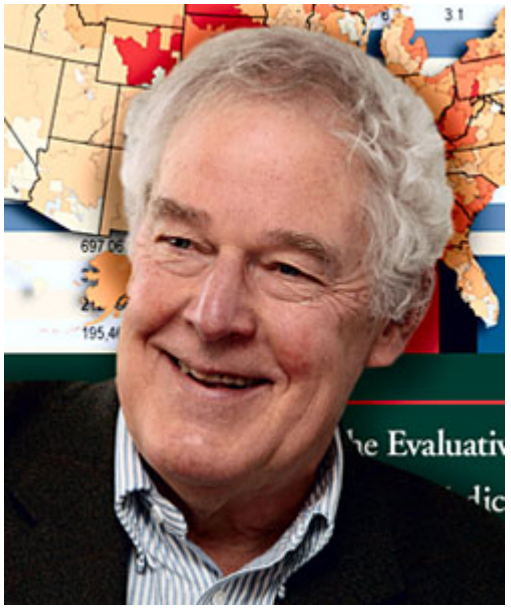
Utilisation comparisons
Procedures chosen

Dr John Wennberg (Dartmouth Medical School)

Widely recognised for pioneering research on health care outcomes and patient-directed care

Pioneering study in 1967 – 1972:

- Observed huge differences for some
- Tonsillectomy: 7% vs 70%
- Hysterectomy: 2 per 1,000 vs 6
- Mastectomies, back surgery etc
- Wennberg's unpopular conclusion: high rates of surgery were not being driven by the patients but rather by the doctors



Dr John E. Wennberg
(photo by Jon Gilbert Fox – Dartmouth News)

Source: "Overtreated: Why too much medicine is making us sicker and poorer" – Sharon Brownlee

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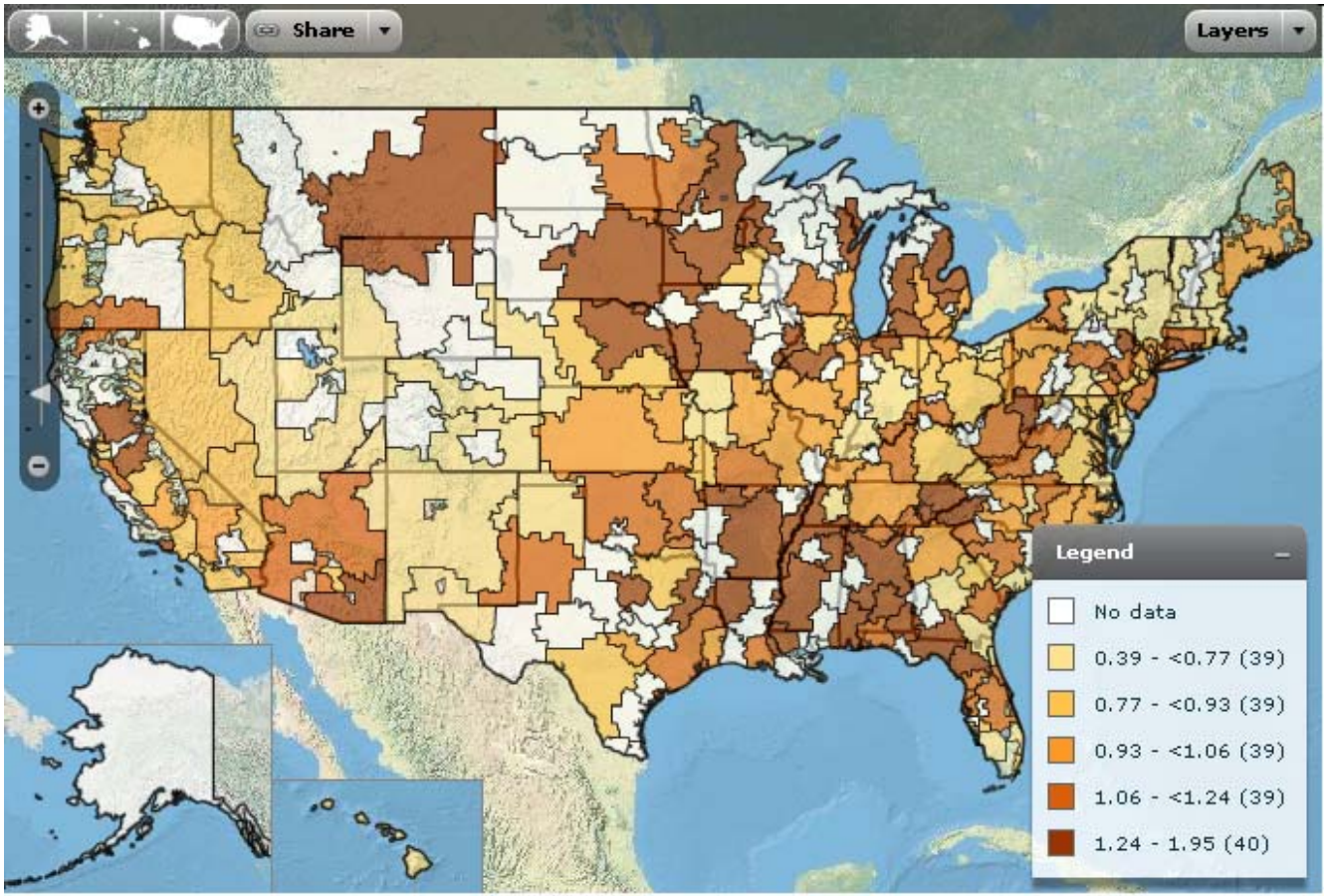
Utilisation comparisons
Mastectomies per 1,000 Medicare females 65-99



Source: Wennberg's Dartmouth Atlas: http://www.dartmouthatlas.org/data/map.aspx?ind=95

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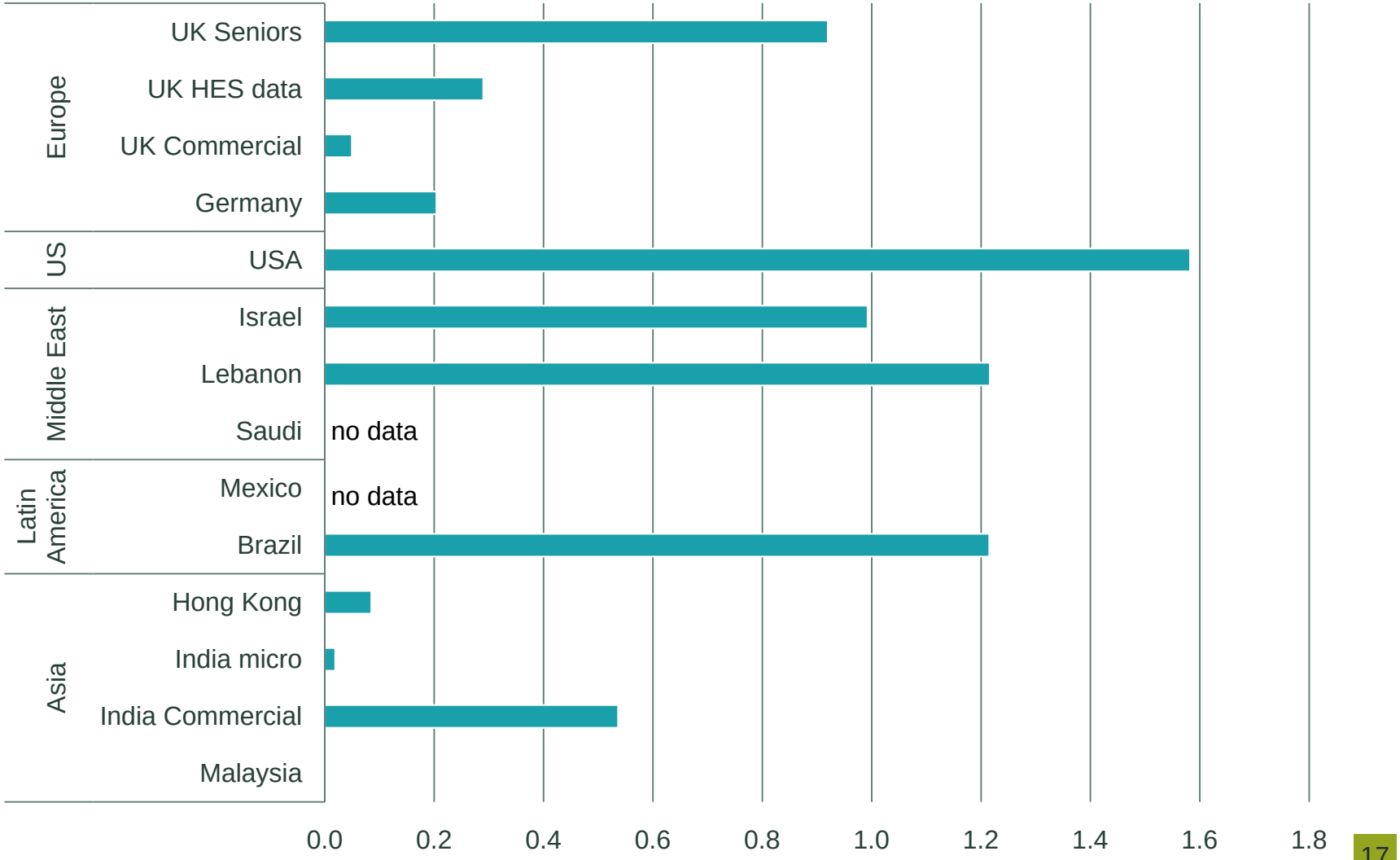
Utilisation comparisons
Mastectomies per 1,000 population



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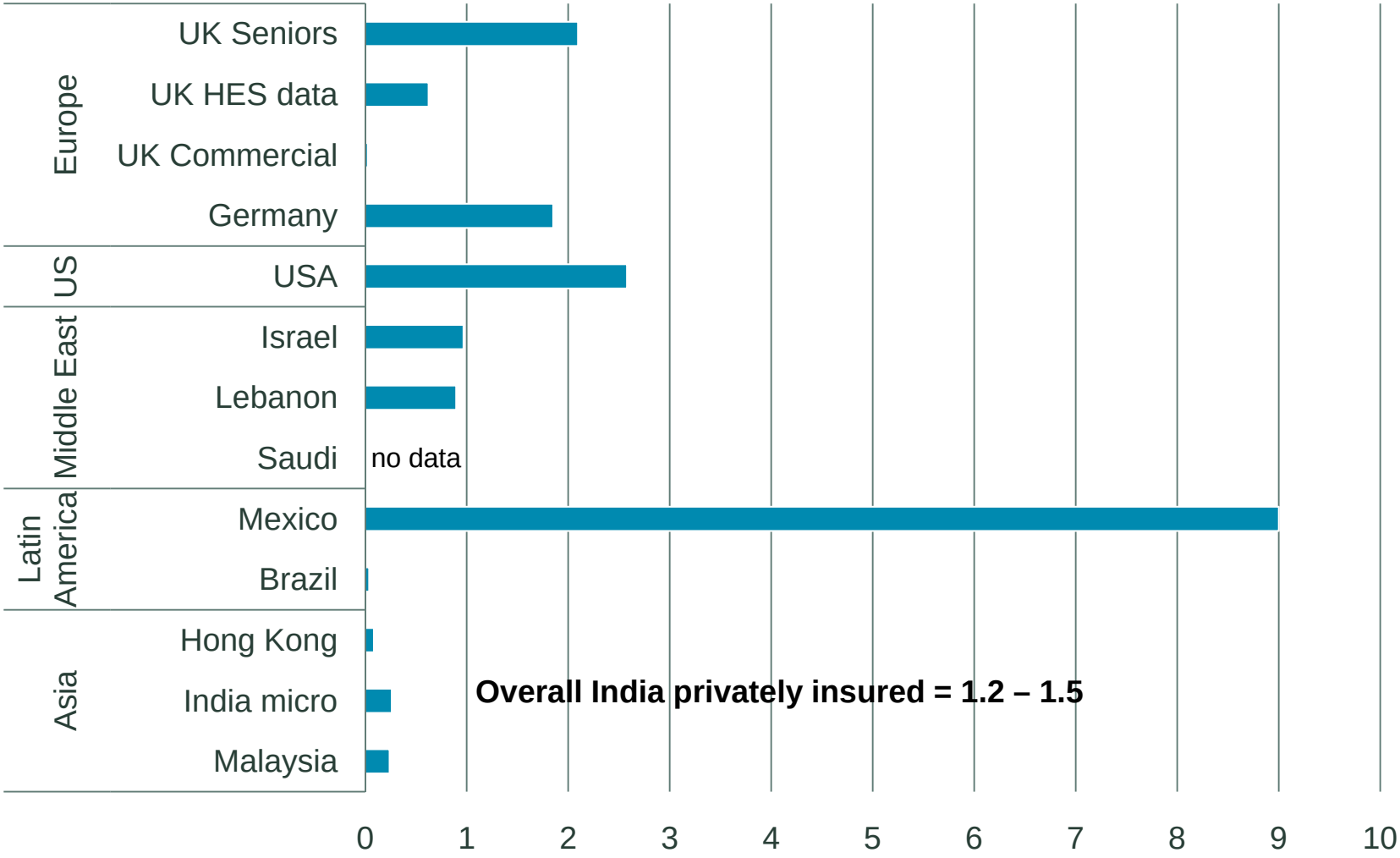
Utilisation comparisons
Hysterectomies per 1,000 population



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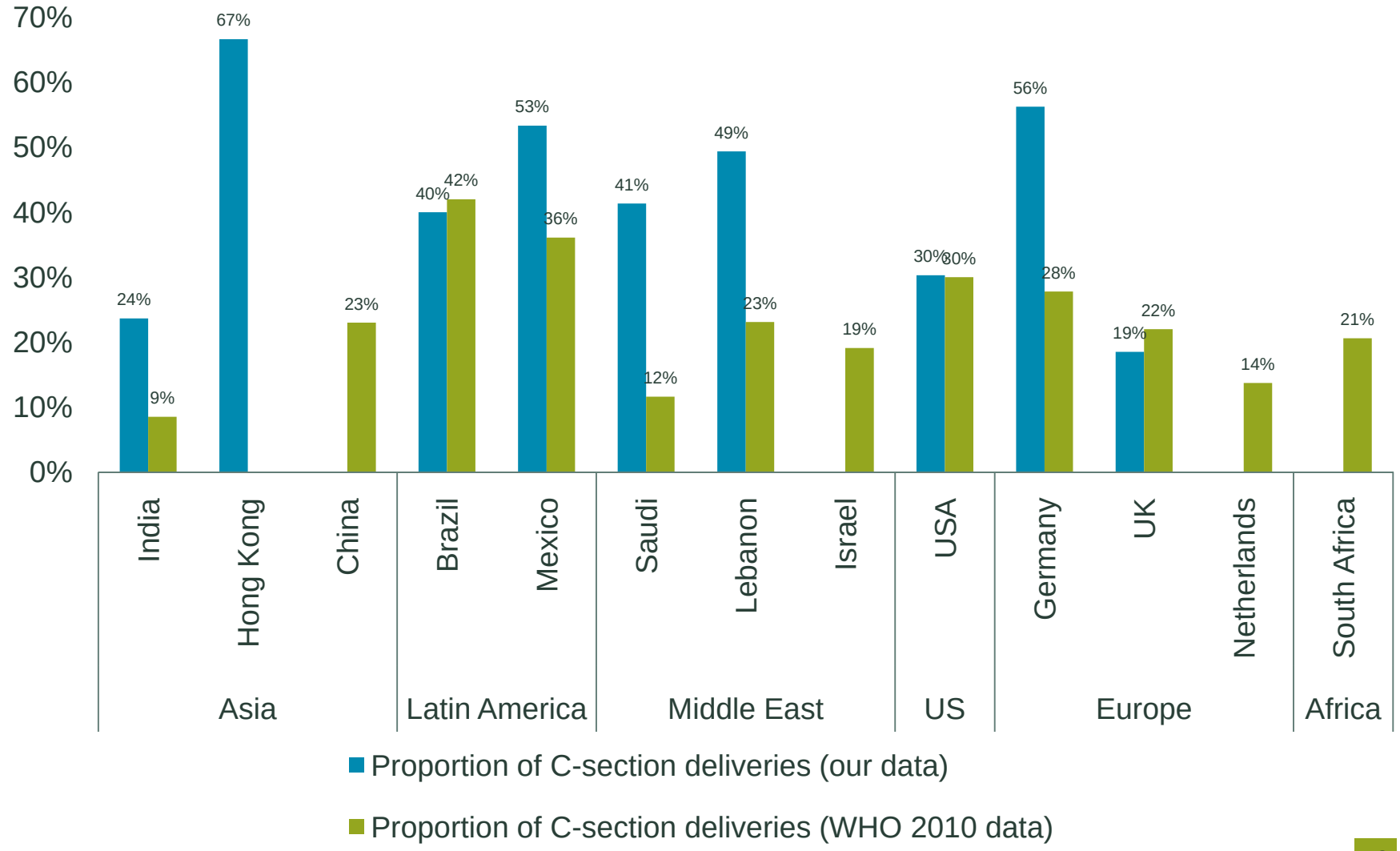
Utilisation comparisons
Proportion of C-sections



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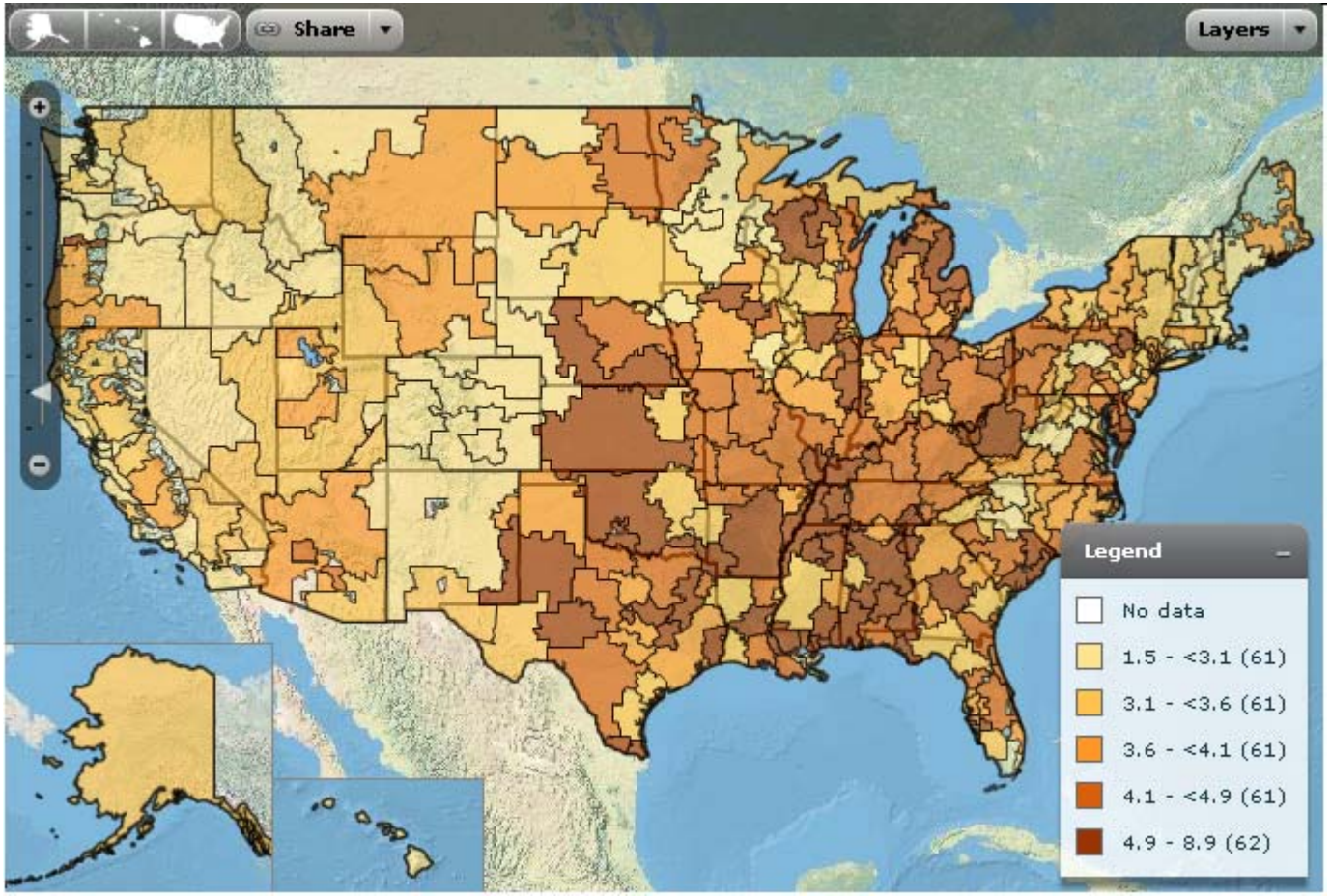
Utilisation comparisons
CABGs per 1,000 Medicare enrolees aged 65-99



Source: Wennberg's Dartmouth Atlas: http://www.dartmouthatlas.org/data/map.aspx?ind=81

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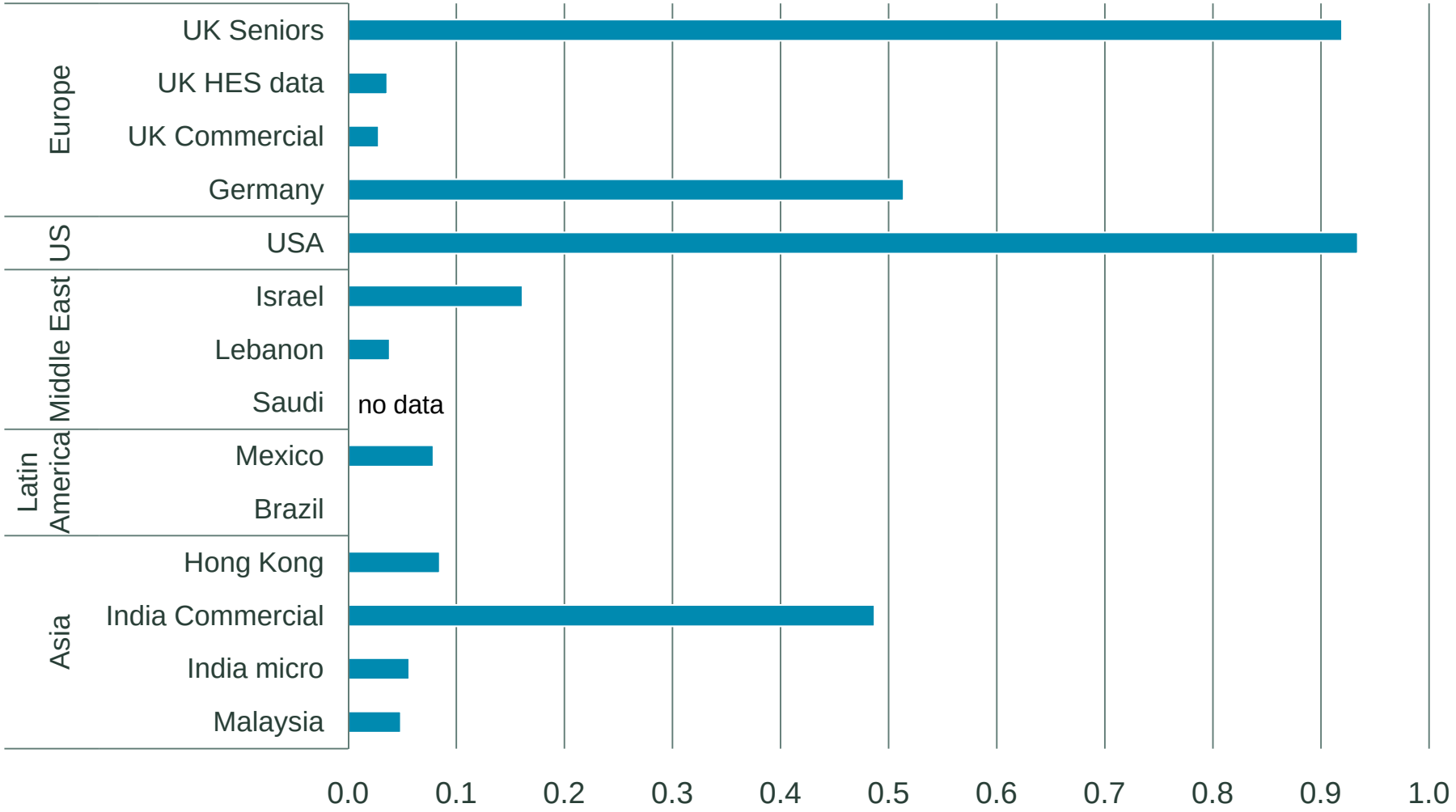
Utilisation comparisons
CABGs per 1,000 population



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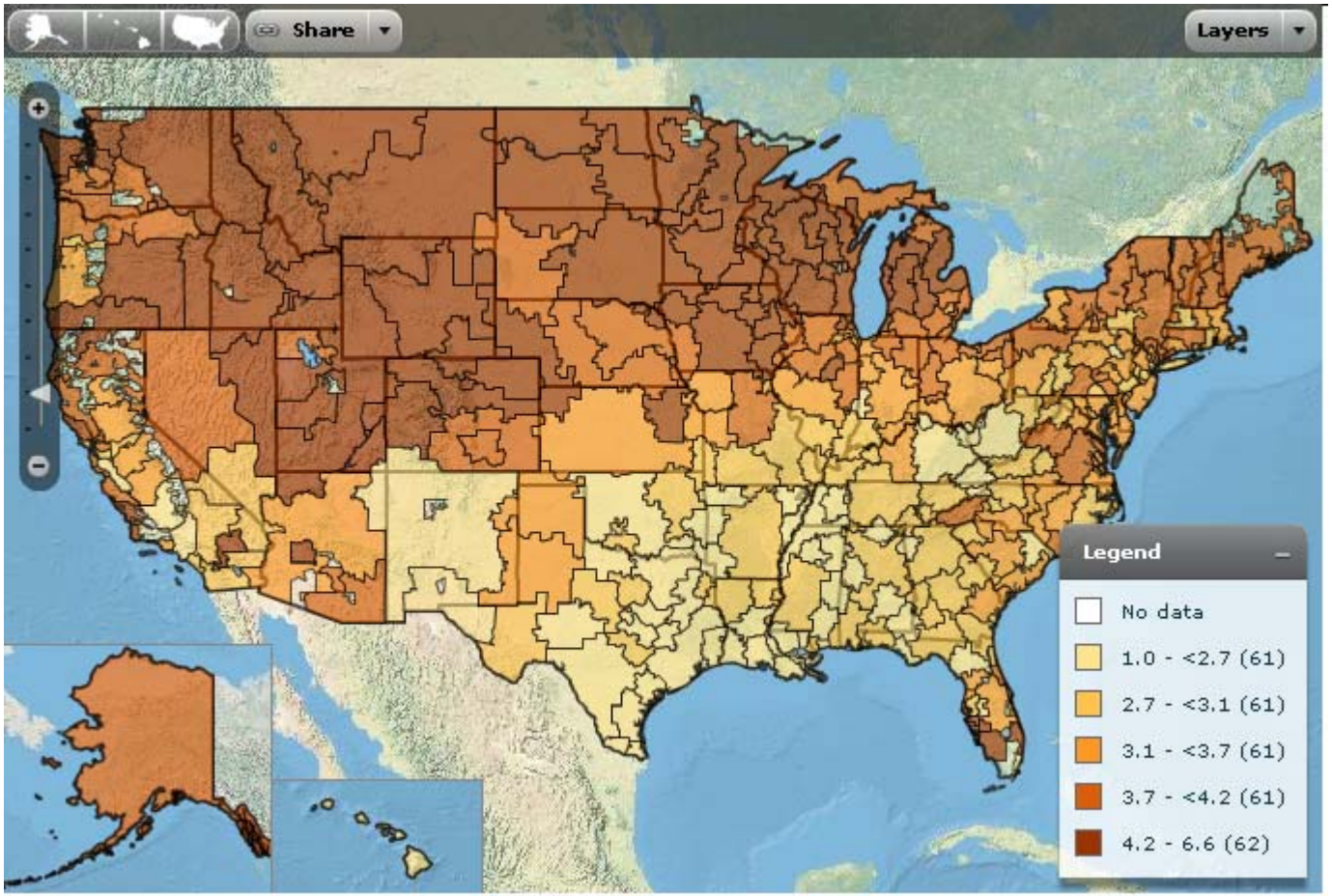
Utilisation comparisons
Hip Replacements per 1,000 Medicare enrolees



Source: Wennberg's Dartmouth Atlas: http://www.dartmouthatlas.org/data/map.aspx?ind=89

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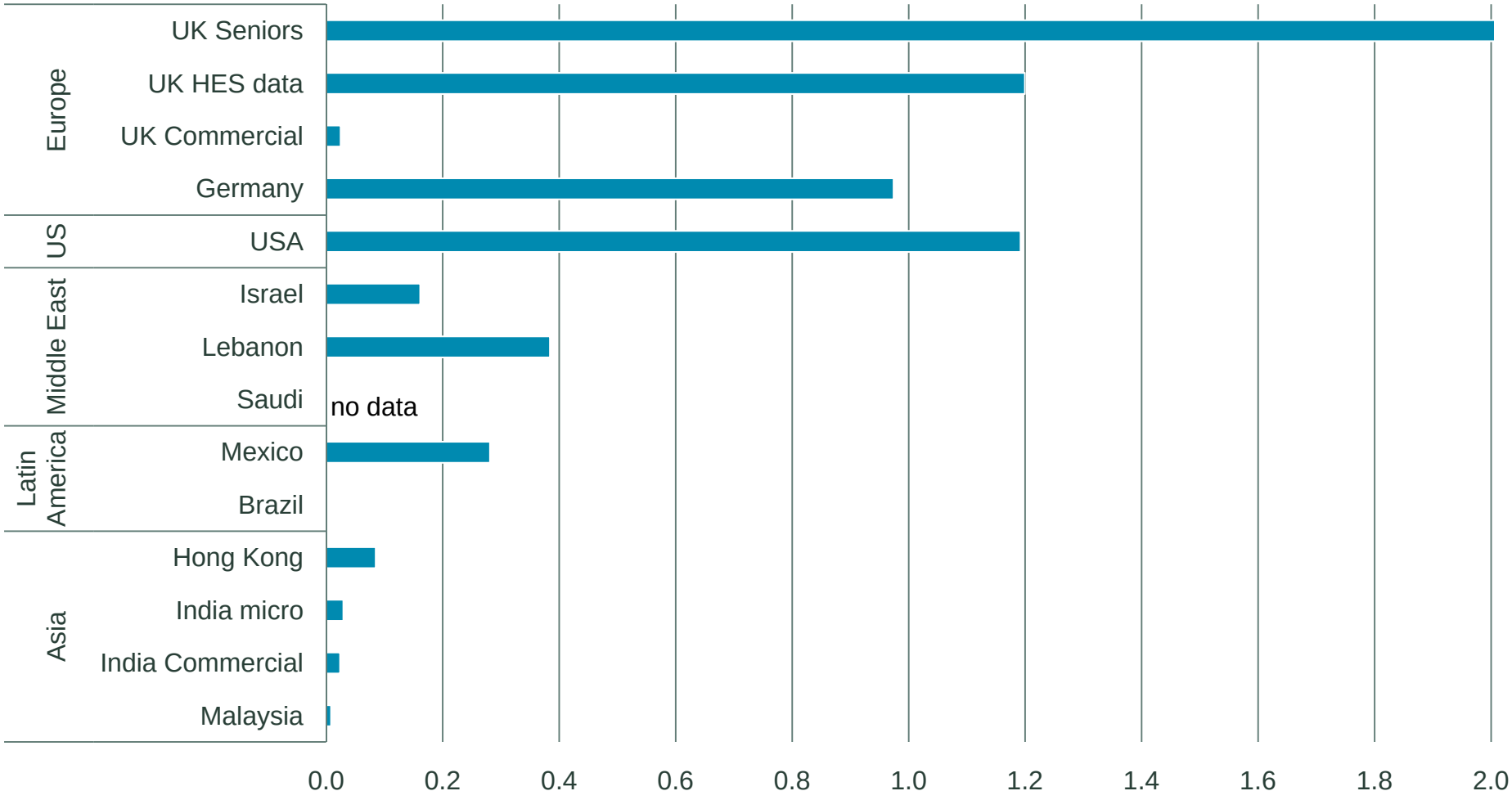
Utilisation comparisons
Hip Replacements per 1,000 population



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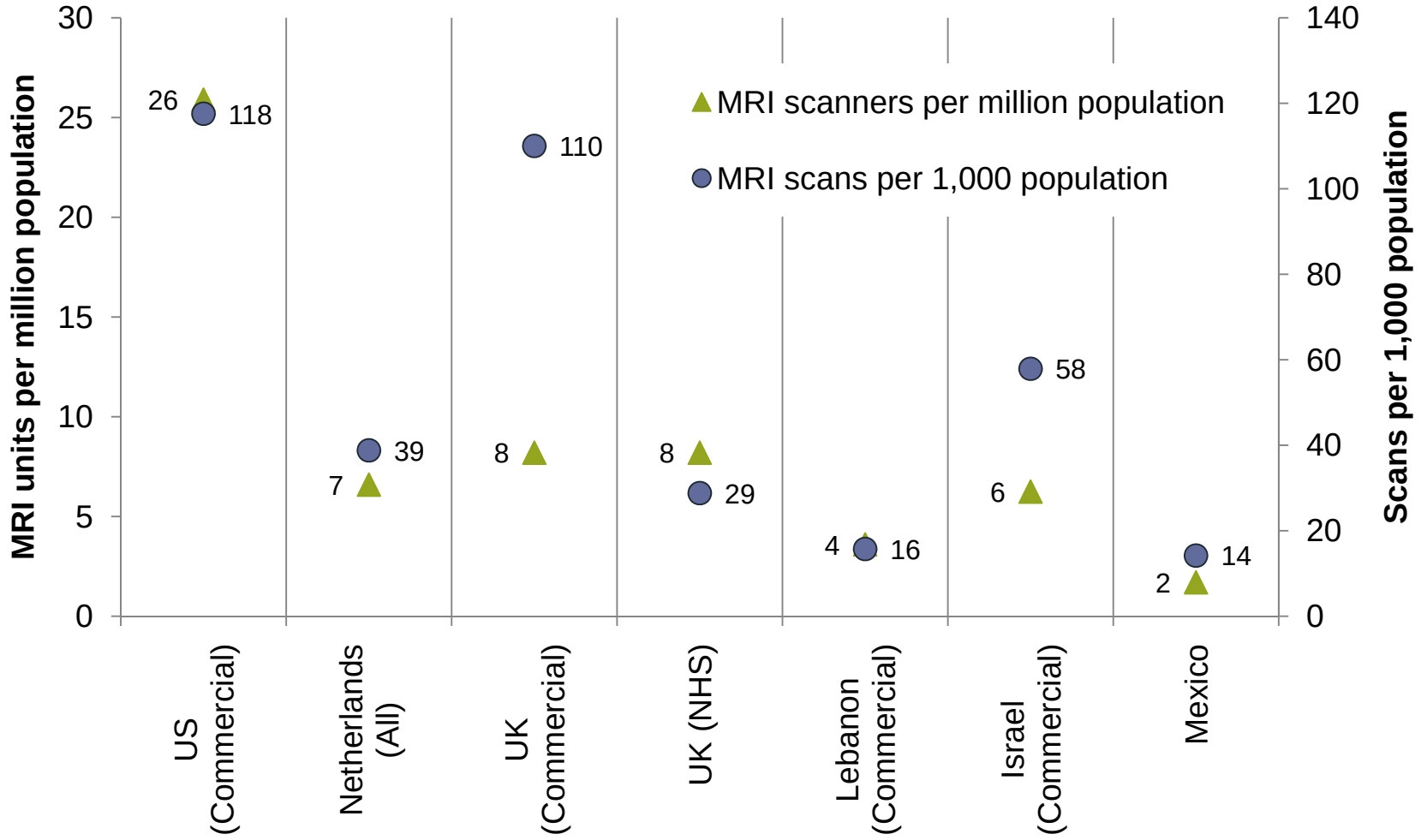
Utilisation comparisons: MRI Scans vs MRI Scanners



Source of units per million population data: Health at a Glance 2009: OECD Indicators - OECD © 2009

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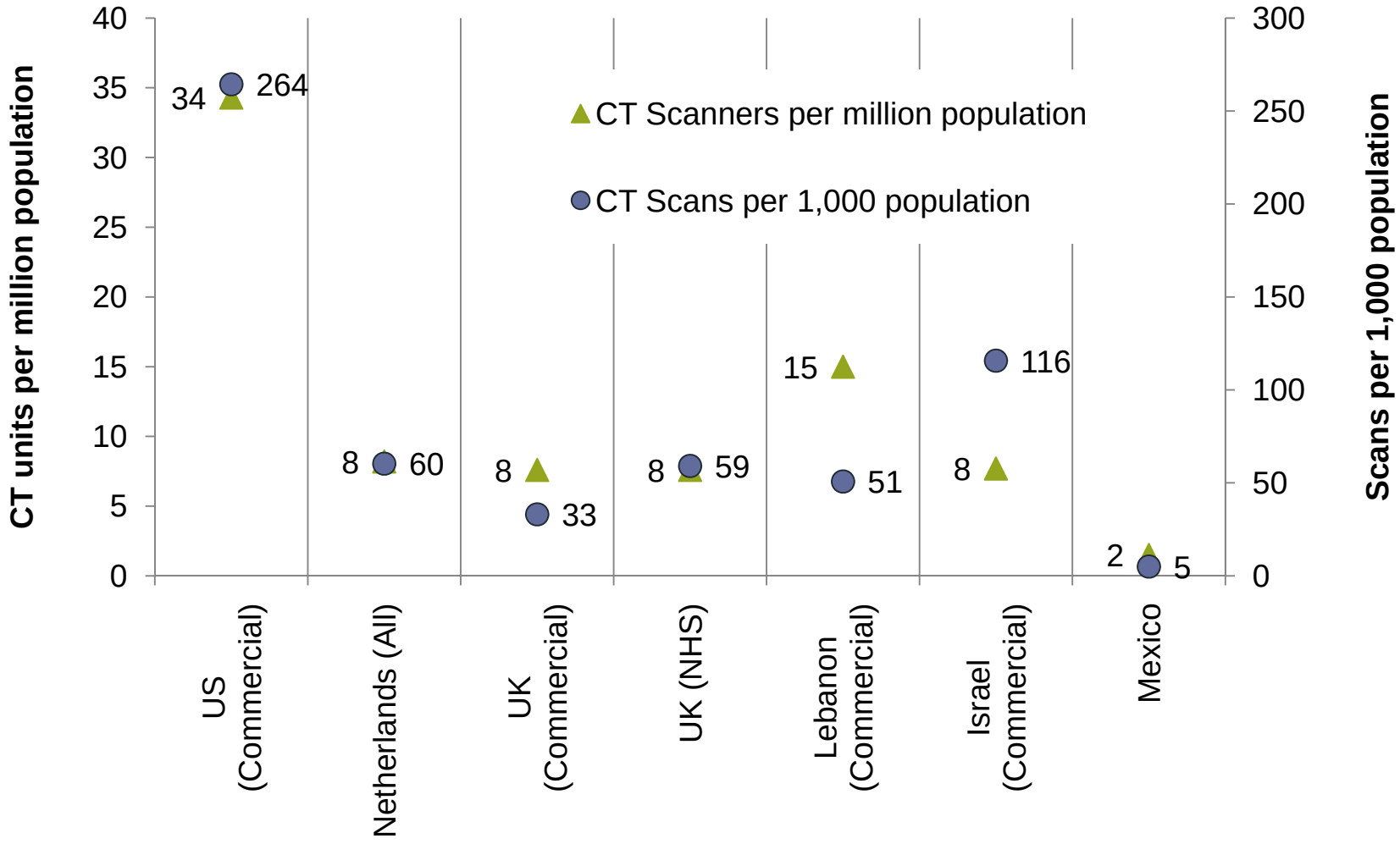
Utilisation comparisons: CT Scans vs CT Scanners



Source of units per million population data: Health at a Glance 2009: OECD Indicators - OECD © 2009

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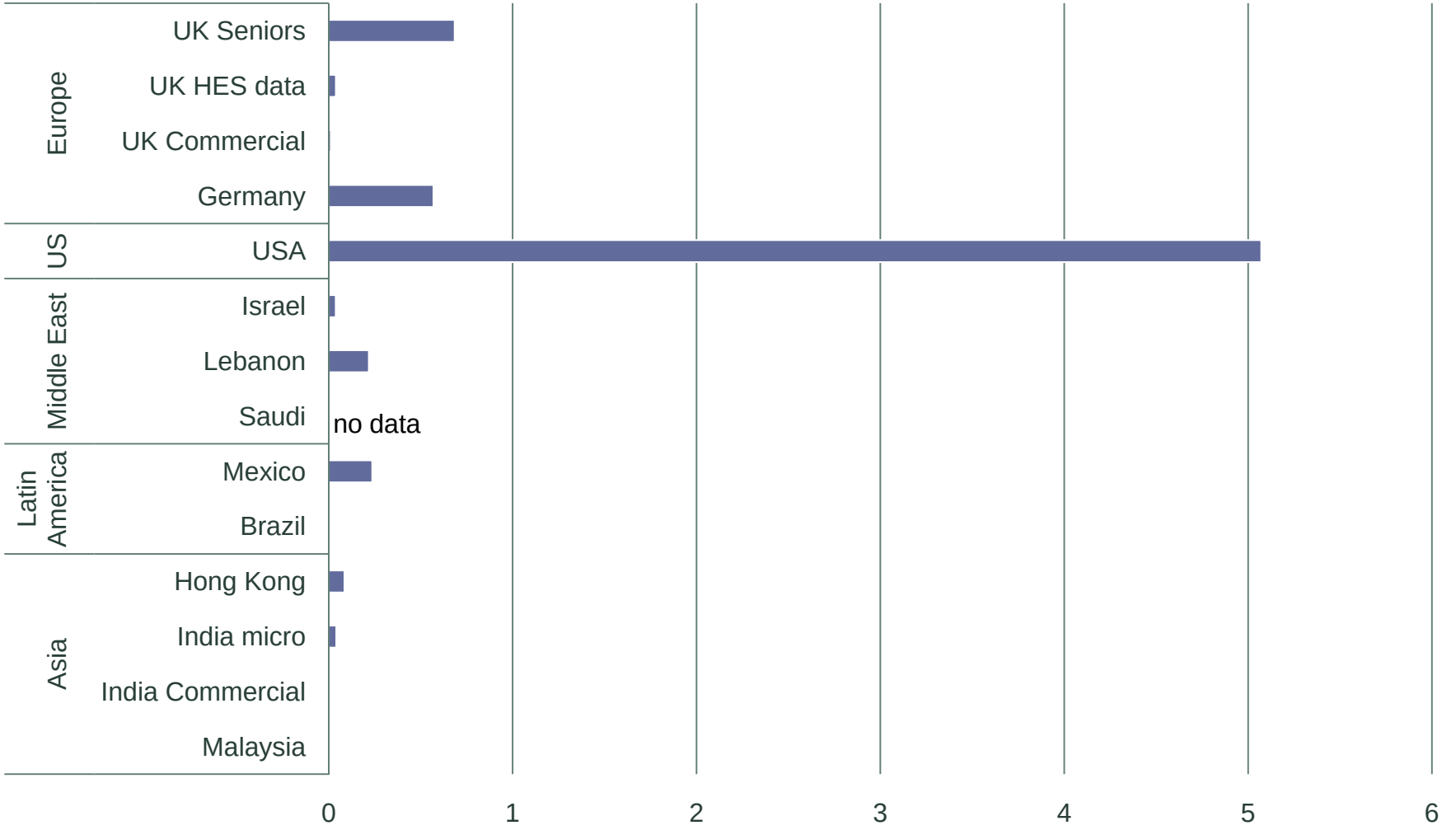
Utilisation comparisons
Spinal Fusions per 1,000 population



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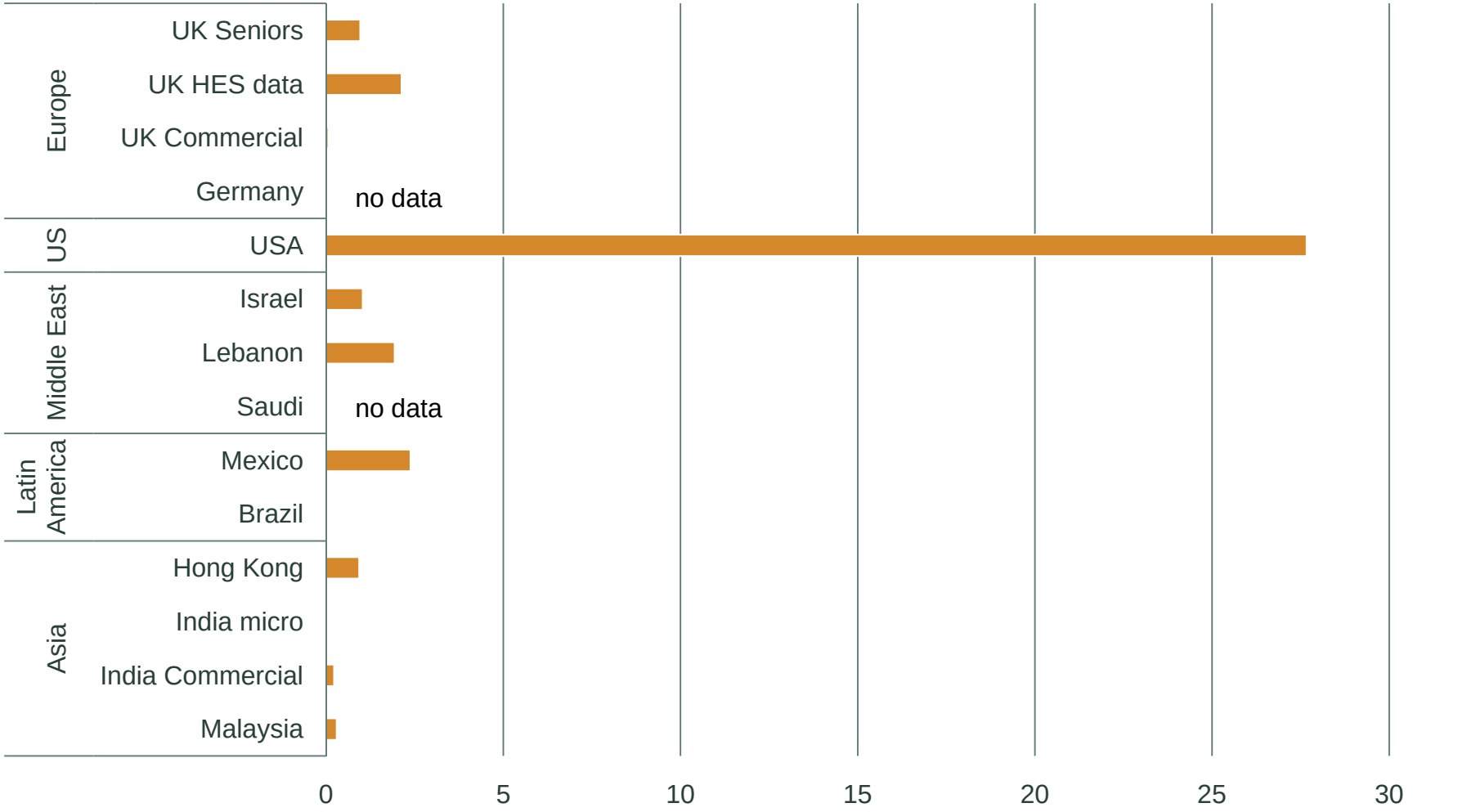
Utilisation comparisons
Arthroscopies per 1,000 population



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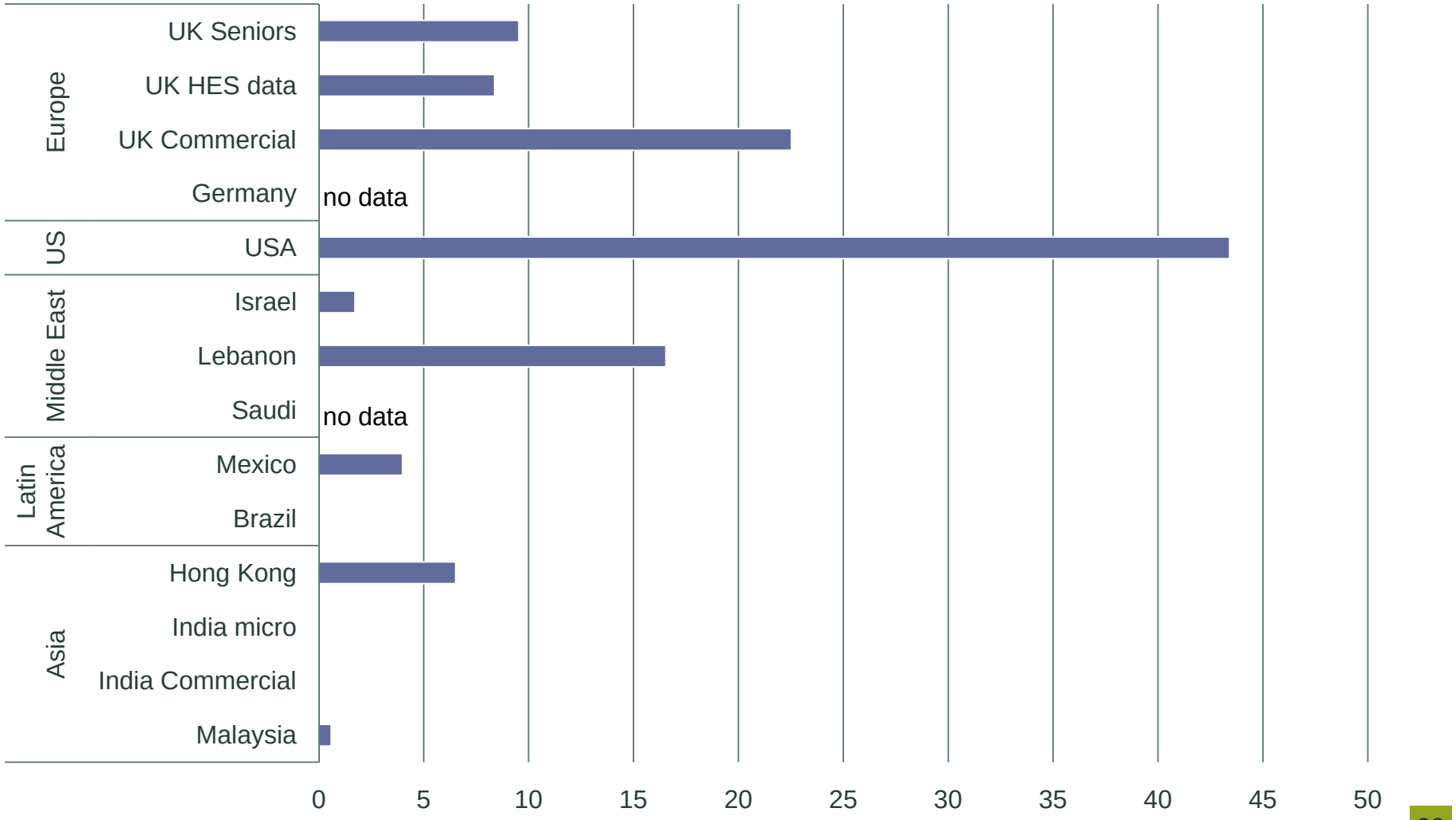
Utilisation comparisons
Gastroscopies per 1,000 population



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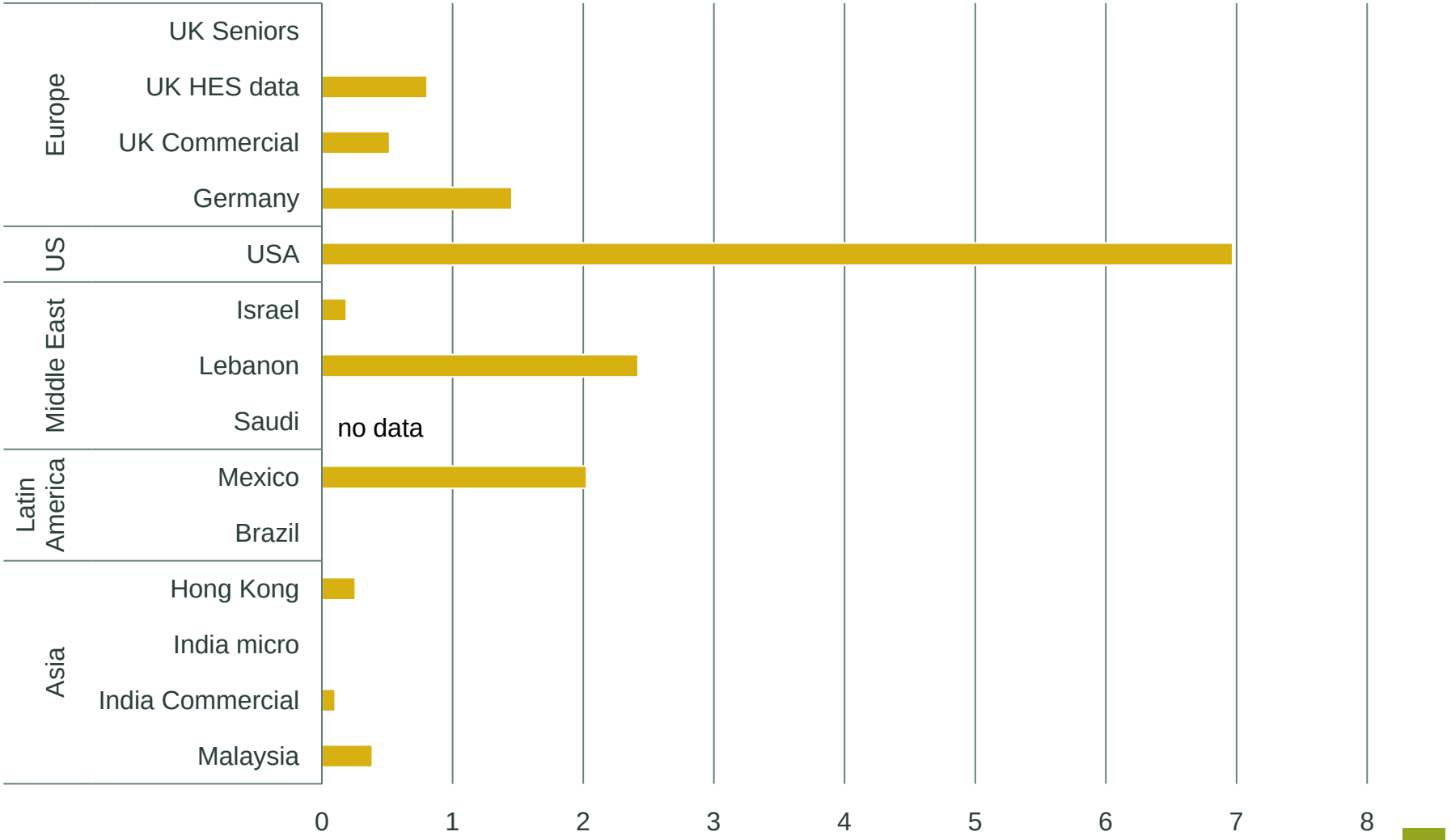
Utilisation comparisons
Tonsillectomies per 1,000 population



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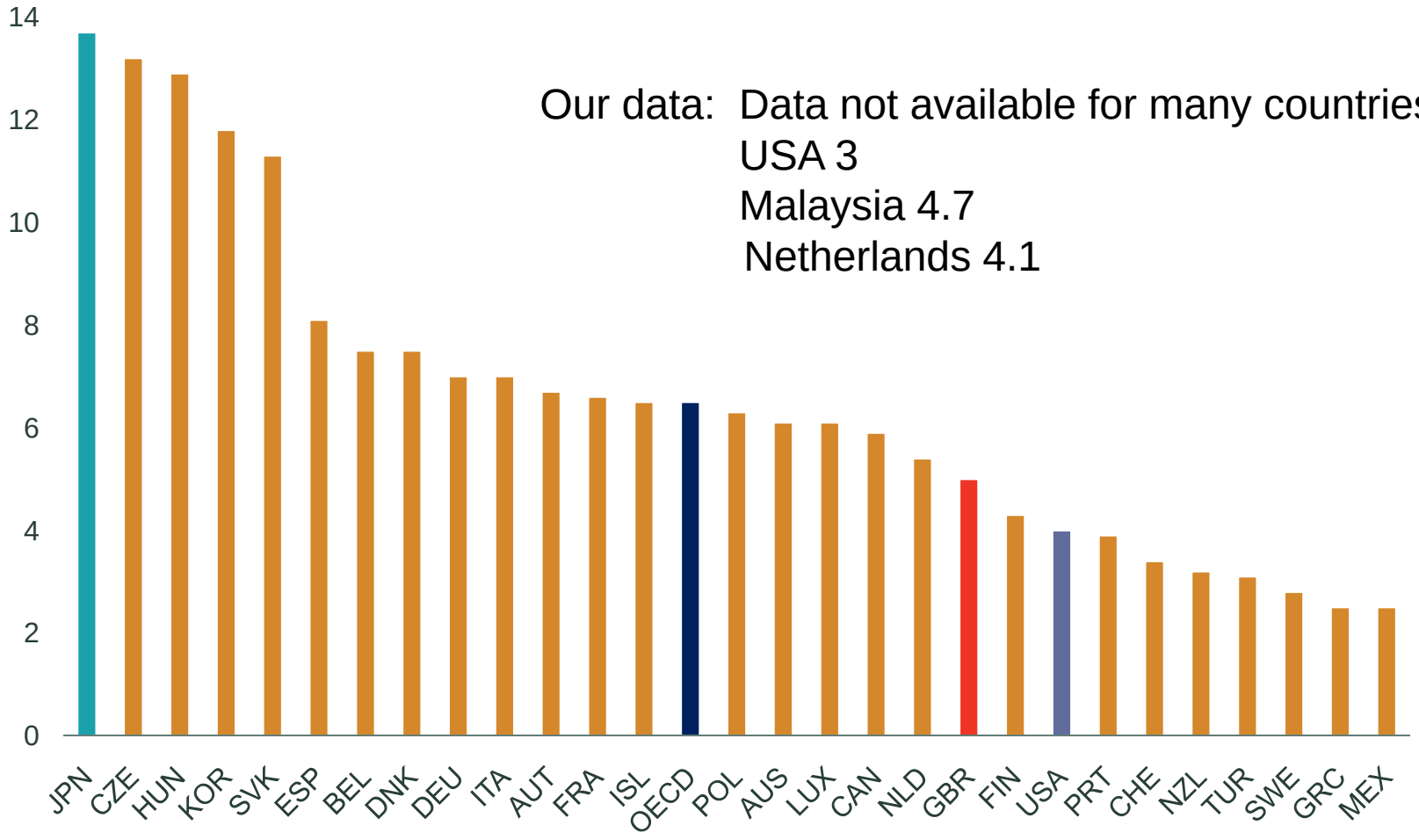
Utilisation comparisons
Number of GP consultations per life per year



Our data: Data not available for many countries
USA 3
Malaysia 4.7
Netherlands 4.1

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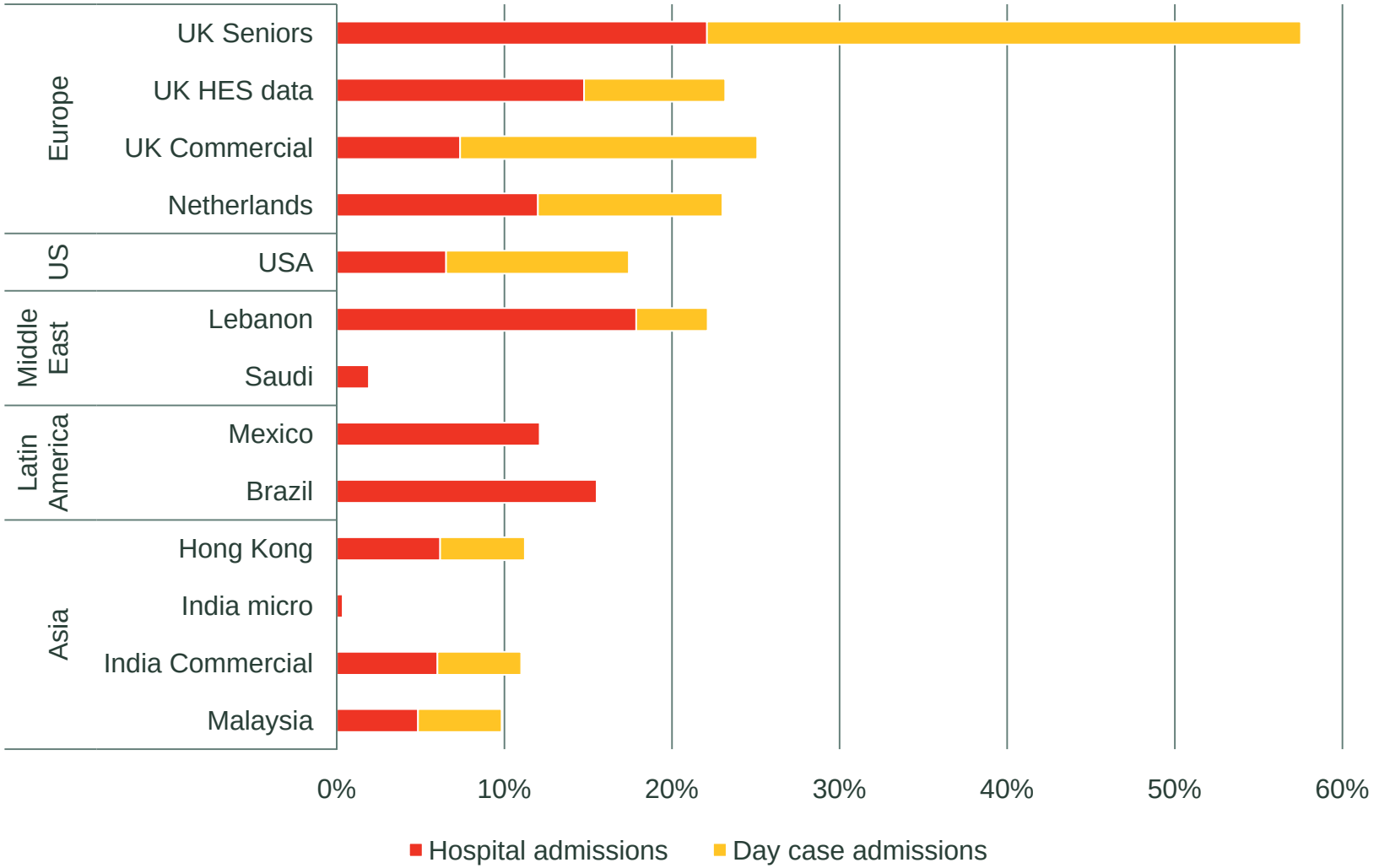
OECD Economic Surveys: Japan - OECD © 2009 - ISBN: 978-92-64-05455-4

Global PMI utilisation patterns
% of hospital admissions per population per year



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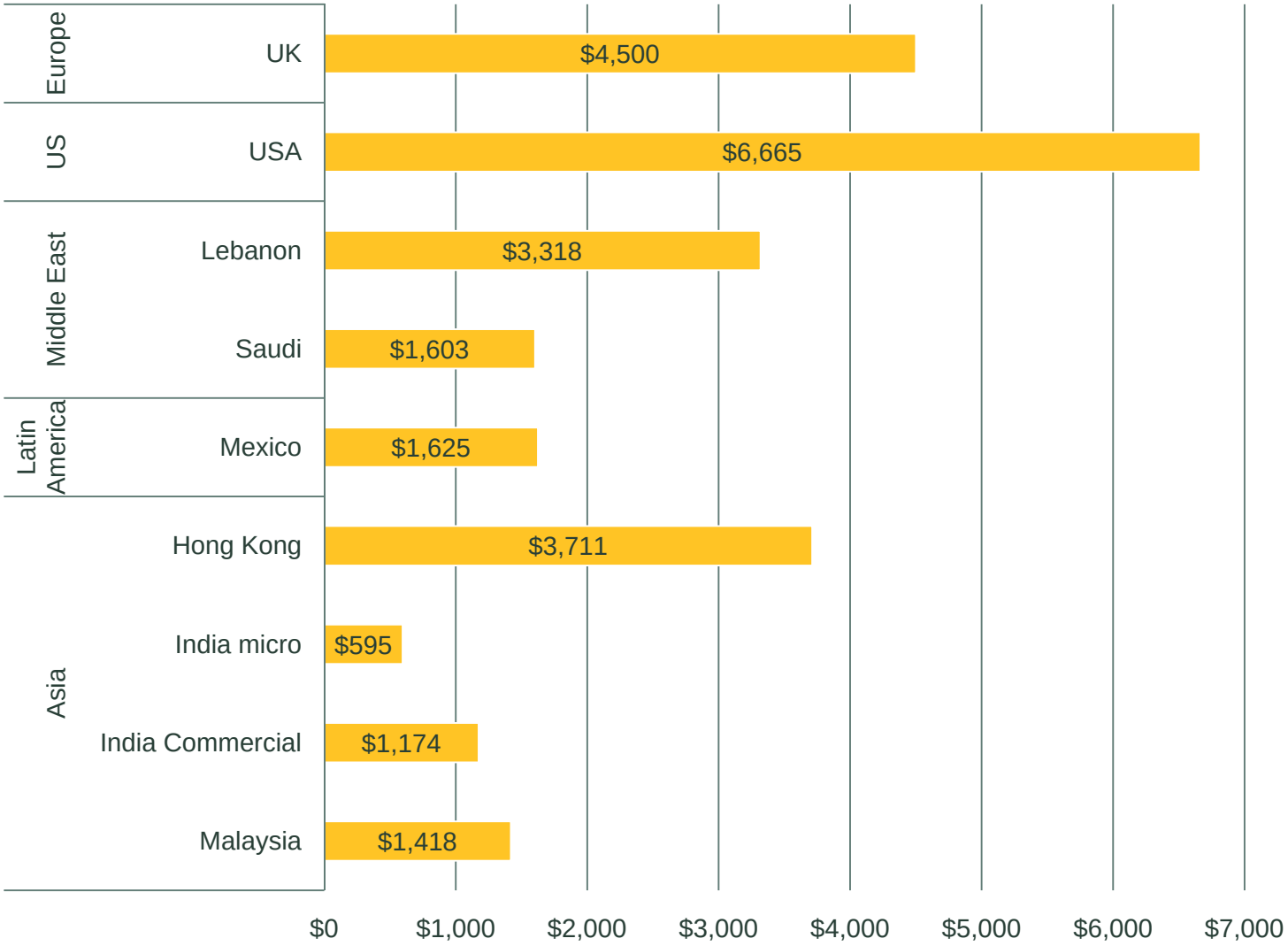
Cost comparison
Average cost per hospital admission (not PPP adjusted)



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Conclusions

- Extreme differentials exist between PMI utilisation patterns currently
- Increased quantity does not necessarily imply better quality of health care
- Care must be taken to price PMI taking into account the uniqueness of each health care market and the product design

Will these differentials persist or will utilisation patterns converge? Is this habit or hiatus?

- For High Net Worth and high end products we are seeing some convergence – towards highest levels
- For microinsurance, the differential will persist indefinitely

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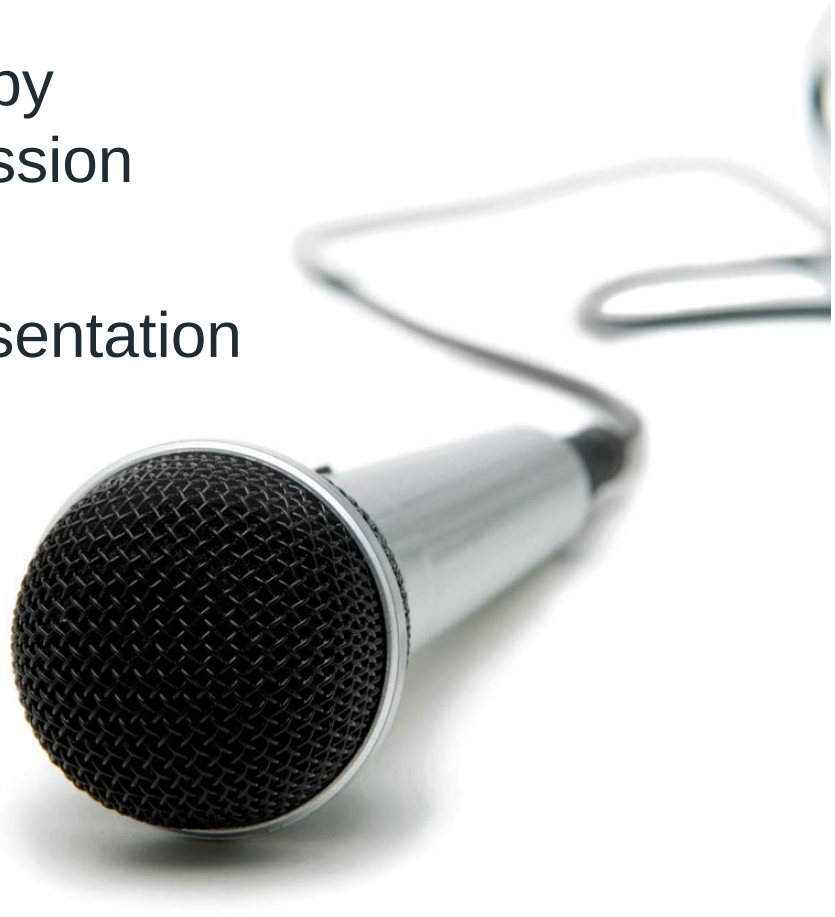
Questions or comments?

Expressions of individual views by members of The Actuarial Profession and its staff are encouraged.

The views expressed in this presentation are those of the presenters.



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Appendix
Country summaries

- Europe: UK, Germany, Netherlands
- USA
- Asia: India, Malaysia, Hong Kong
- Middle East: Saudi Arabia, Lebanon, Israel
- Latin America: Brazil, Mexico

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UK

- PMI is supplemental, voluntary and often overlapping
- People have choice of using NHS or PMI for most procedures
- Use of PMI often depends on state of NHS in particular area and specialty
- Some drugs/procedures covered by PMI that not available on NHS
- Supply of hospital beds not constrained in private sector – little control of utilisation
- Mindset of “have paid premium, will use services”
- Medium level of obesity & chronic disease in population, but not high among people who have private coverage

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Germany

- 85% population have compulsory social insurance
- 15% opt out and have alternative PMI
- A high proportion also have supplemental insurance
- PMI is heavily regulated in terms of premiums and UW
- High cultural expectations of good coverage – traditionally has included spa treatments!
- High supply of medical infrastructure – docs, nurses, beds

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Netherlands

- All private – every citizen must buy an approved level of private insurance. Top up insurance is voluntary
- Fairly supply-constrained in certain areas, with waiting lists
- Reimbursement system does not encourage over-use – tend to be episode based rather than Fee For Service ('FFS')
- Cultural expectations and ageing lead to high utilisation for certain services

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USA

- PMI is first dollar coverage for most working population
- Even government programmes often overseen by private insurers
- High supply and reimbursement encourages over-use, despite efforts to control
- Consumer & high spending power mindset encourages excessive use
- Cultural pre-occupation with consuming healthcare, although politically not seen as universal right
- Often generous coverage
- High levels of obesity and chronic disease, but relatively young population overall

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India

- PMI only covers 2-3% of population – relatively wealthy, privileged class
- Fast growing – premium growth of 30% + over last few years
- Also fast growing supply – PMI may be seen as a way of funding hospital building
- Tend to be inpatient-only coverage
- Public health care very poor and struggling to deliver even the most basic care to the population of 1.2 billion
- Microinsurance fills the gap for some but cover is very limited.

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Malaysia

- Health care catered for by public and private providers
- Lack of supply of health care resources is an issue
- The high cost of private health care is also an issue
- 65% of Medical and Health Insurance ("MHI") premiums relate to hospital and surgical cover (CI, LTC and hospital cash plans make up the balance)
- Increasing trend towards MHI, fuelled by increased tax relief in the mid 1990s
- Ongoing discussion about a National Health Financing Scheme for Malaysia

Source: Axco Report - Malaysia Life & Benefits

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Hong Kong

- 2.7 million of the 7 million population in Hong Kong have some form of private medical insurance
- The government encourages take up of PMI by standardising products and requiring a savings facility for old-age premium costs
- Voluntary “top-up” policies are also available (mostly individual policies to supplement employer plans)
- Hong Kong is one of the most affluent societies in the world, standards of health care for the well-off are extremely high
- Lack of supply of private hospital beds due to demand from the mainland.
- Undisciplined market: high costs and high utilisation

Source: Axco Report - Hong Kong Life & Benefits

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Saudi Arabia

- All expats must have approved minimum level of coverage
- Historically some supply constraints, but large scale hospitals building
- Low utilisation for cultural reasons:
  - Often lowly paid foreign workers don't realise extent of insurance coverage
  - Sick workers tend to go home, rather than be treated
- By definition, covered people are fit enough to work

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Lebanon

- Approx 1.5m people have PMI out of population of 4m
- Much less ex-pat cover than other Middle Eastern countries and more domestic cover
- High utilisation trends as Lebanese awareness and demand approaches that of Western countries like the US
- Cultural trend towards increasing % of C-sections
- Preference is to access specialist directly (gatekeeper concept is not successful)

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Israel

- Standards of health care are very high in Israel
- Israel has a system of compulsory Social Insurance: every resident is required to register as a member with one of the four Health Funds or “Kupat Holim”, deductions from income
- Supplementary benefits are available from each sick fund for an additional premium (known as Mashlim / SHABAN)
- In addition, top up cover is available from insurance companies, which covers, for example, medicines not covered by the sick funds, specified surgeries or organ transplants. This is essentially the PMI market in Israel.
- Even if the insured has cover through a Health Fund and supplementary benefits, they may not make use of them, choosing to place the full burden with the PMI insurer.

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Brazil

- Public healthcare of very poor quality and 25% of population have private coverage – which is essentially duplicative
- No underwriting allowed for individual PMI, some for group
- Cultural expectations of private healthcare is for treatment without limit
- Reimbursement usually encourages over-utilisation
- Taking out of private healthcare encouraged by government – private insurers obliged to cover new treatments by government
  - High utilisation trends due to new technologies/treatments

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Mexico

- PMI is an alternative to comprehensive social insurance – essentially duplicates compulsory public insurance
- Approx 9m people have PMI out of population of 55m
- Combination of major/minor medical coverage + dental, optical etc
- Little regulation as voluntary, with underwriting allowed
- High net worth/middle class portfolio with high expectations wanted freedom of choice of physicians and hospitals
- Few controls on utilisation – with open or preferred provider networks

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