



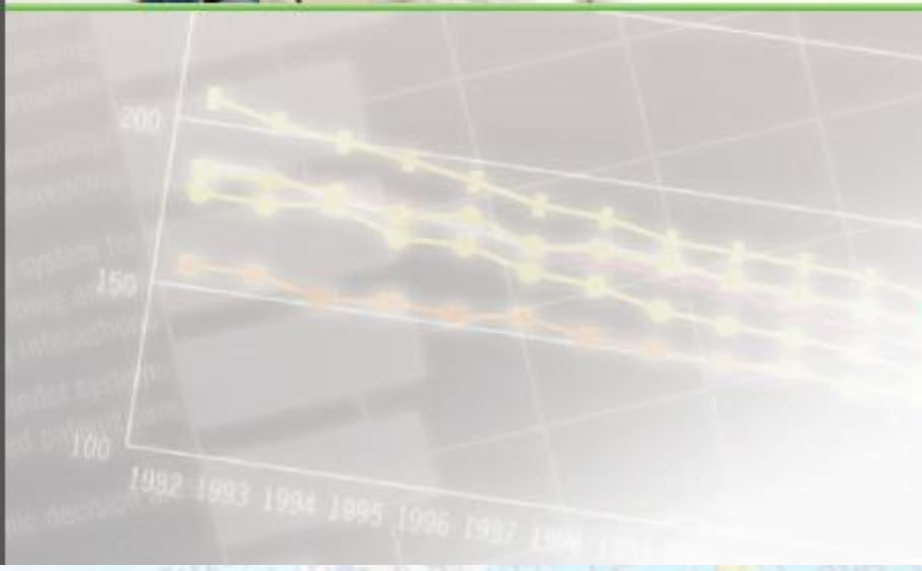
# Maximizing Health System Performance

Martin McKee  
Edmonton, 2011

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# Quality of Healthcare in Canada: A Chartbook

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**CHSRF**  
CANADIAN HEALTH SERVICES  
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**Table 1: Six domains used as organizing principles for quality chartbooks**

Quality domain	Principle	Examples of measures
Effectiveness	Healthcare services should be based, as far as possible, on relevant rigorous science and research evidence.	<ul style="list-style-type: none"> <li>• Mortality rates</li> <li>• Compliance rates with evidence-based guidelines</li> </ul>
Access	Healthcare services should be provided at the time they are needed within the appropriate setting.	<ul style="list-style-type: none"> <li>• Provision of emergency care</li> <li>• Availability of specialist care or rehabilitation</li> </ul>
Capacity	Healthcare systems should be sufficiently well resourced to enable delivery of appropriate services.	<ul style="list-style-type: none"> <li>• Staffing levels</li> <li>• Number of scanners</li> <li>• Information technology</li> </ul>
Safety	Patients should not be harmed by the care that they receive or exposed to unnecessary risk.	<ul style="list-style-type: none"> <li>• Nosocomial infections</li> <li>• Medication errors</li> <li>• Falls</li> </ul>
Patient-centredness	Healthcare should be: <ol style="list-style-type: none"> <li>1. based on a partnership between practitioners and patients (and where appropriate, their families)</li> <li>2. delivered with compassion, empathy and responsiveness to the needs, values and preferences of the individual patient.</li> </ol>	<ul style="list-style-type: none"> <li>• Patient evaluations of care</li> <li>• Shared decision-making</li> <li>• Patient experiences and interactions with staff</li> </ul>
Equity	Healthcare should be provided: <ol style="list-style-type: none"> <li>1. on the basis of clinical need, regardless of personal characteristics such as age, gender, race, ethnicity, language, socioeconomic status or geographical location</li> <li>2. in such a way as to reduce differences in health status and outcomes across various subgroups.</li> </ol>	<ul style="list-style-type: none"> <li>• Comparisons of care provided across different sub-populations (for example, older people versus entire population)</li> <li>• Mortality rates by socioeconomic status</li> </ul>

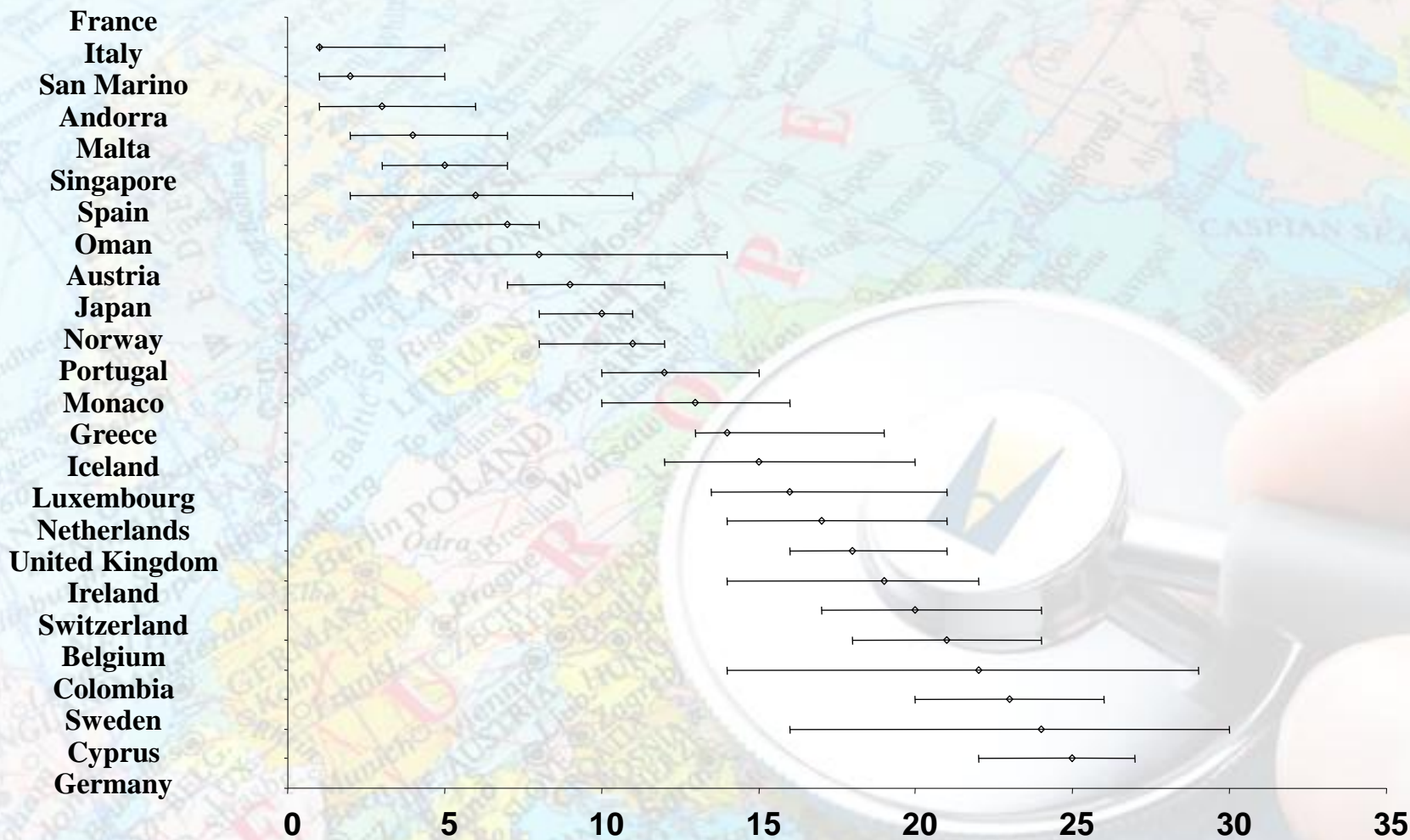
Source: Leatherman and McCarthy, 2002; Leatherman et al, 2008

# A useful starting point

- 2000 World Health Report identified three health system goals:
  - Health outcomes
    - Level and distribution
  - Responsiveness
    - Level and distribution
  - Fairness of financing



# Ranks on overall performance: uncertainty intervals for countries 1-25

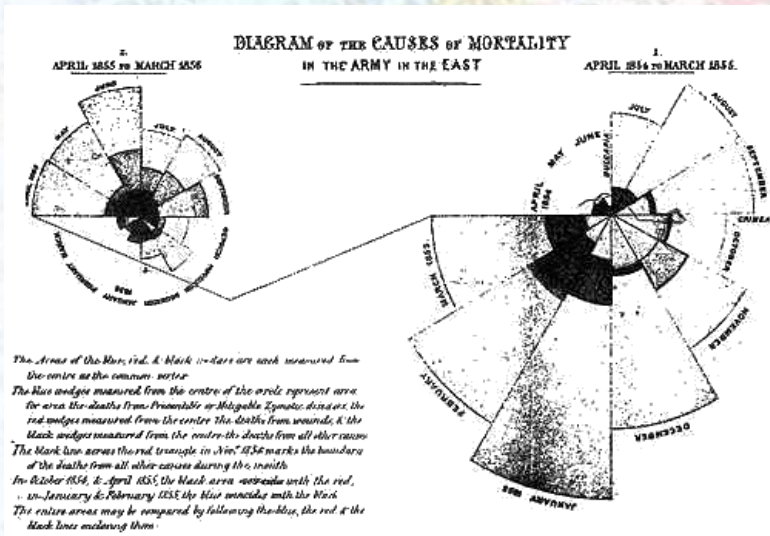


# Maximising performance for whom?

- Government
  - **Trends in population health**
  - Assurance that regulation is working
  - Ensuring finances used as intended
- Regulators
  - Ensuring patient safety
  - Ensuring effective functioning of market
- Taxpayers
  - Ensuring money spent efficiently and in line with expectations
- Purchaser organisations
  - Assessing unmet need
  - **Ensuring that providers deliver timely, effective care responsive to public expectations**
- Provider organisations
  - Monitoring and improving standards
  - Assessing local needs
- Physicians
  - **Providing high quality patient care**
  - Maintaining and improving knowledge and skills
- Patients
  - **Being able to chose a provider when in need**
  - Accessing information on effectiveness of alternative treatments
- Citizens
  - Being assured that services will be available when needed
  - Holding government to account

# A government perspective: avoidable mortality

- Deaths from some causes are preventable by timely and effective care
- Idea goes back to Florence Nightingale
- Concept developed in 1970s by Rutstein
- Updated in 2004 by Nolte & McKee



## DOES HEALTHCARE SAVE LIVES?

AVOIDABLE MORTALITY REVISITED

Ellen Nolte  
Martin McKee

The Nuffield Trust  
THE RESEARCH AND POLICY  
PIONEER IN HEALTH RESEARCH

# Operationalising the concept

- Decide what causes are amenable to medical care
  - Initially based on expert judgement of what treatments exist and were likely to be effective
- Decide upper age limit
  - Everyone has to die from something, sometime
  - Problem of identifying a single cause of death from among multiple disease processes
  - Initially 65, now typically 75
  - Some initial exceptions
    - Diabetes (<50)
    - Leukaemia (<15)



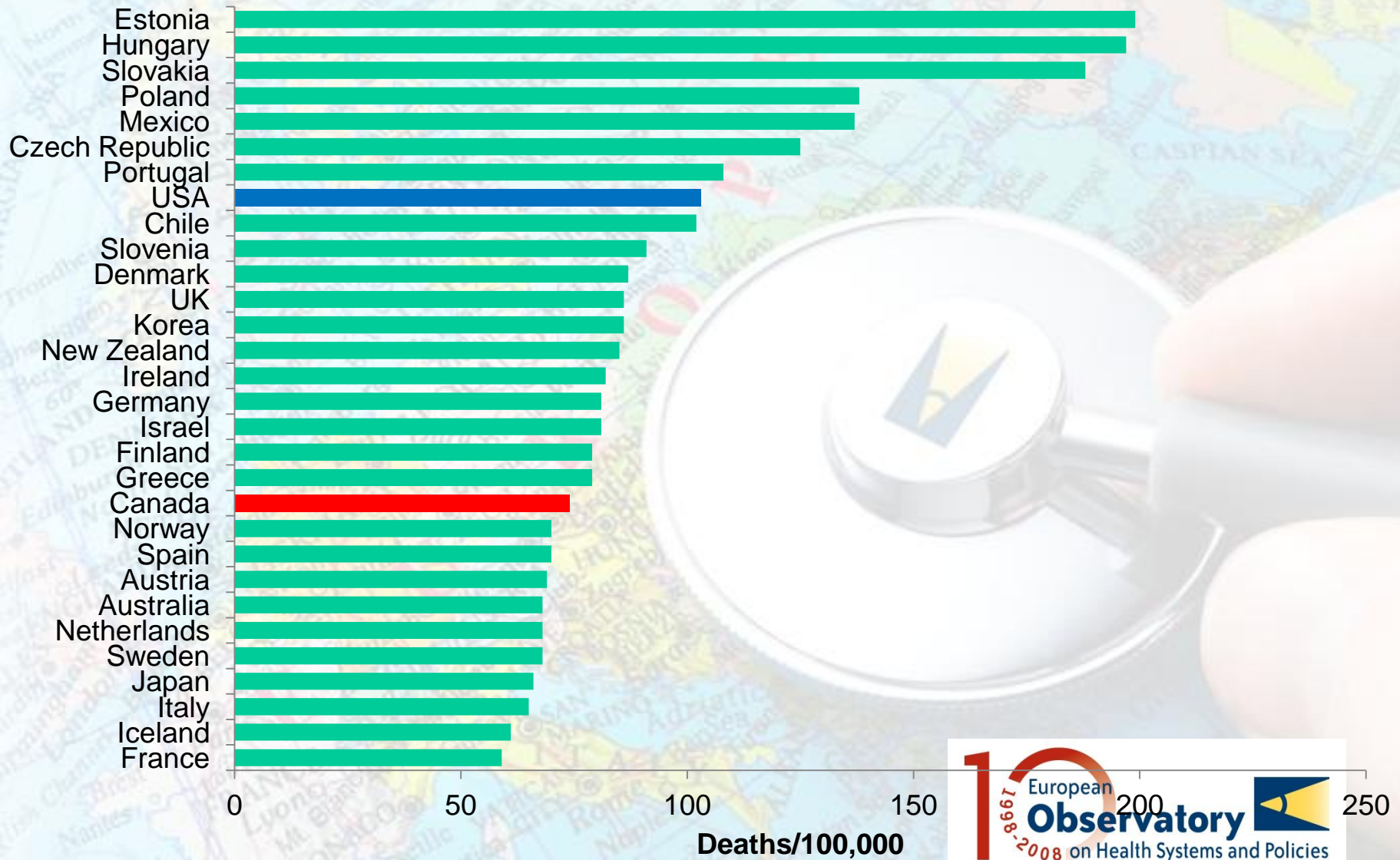
# What was included (examples)

- Infections
  - Tuberculosis
  - Measles
- Cancers
  - Non-melanoma skin
  - Breast
  - Colon & rectum
- Cardiovascular disease
  - Ischaemic heart disease
  - Stroke
- Respiratory disease
  - Pneumonia
  - Influenza
- Gastrointestinal disease
  - Peptic ulcer
  - Cholecystitis
- Renal disease
  - Nephritis & nephrosis
- Maternal deaths
- Certain perinatal deaths

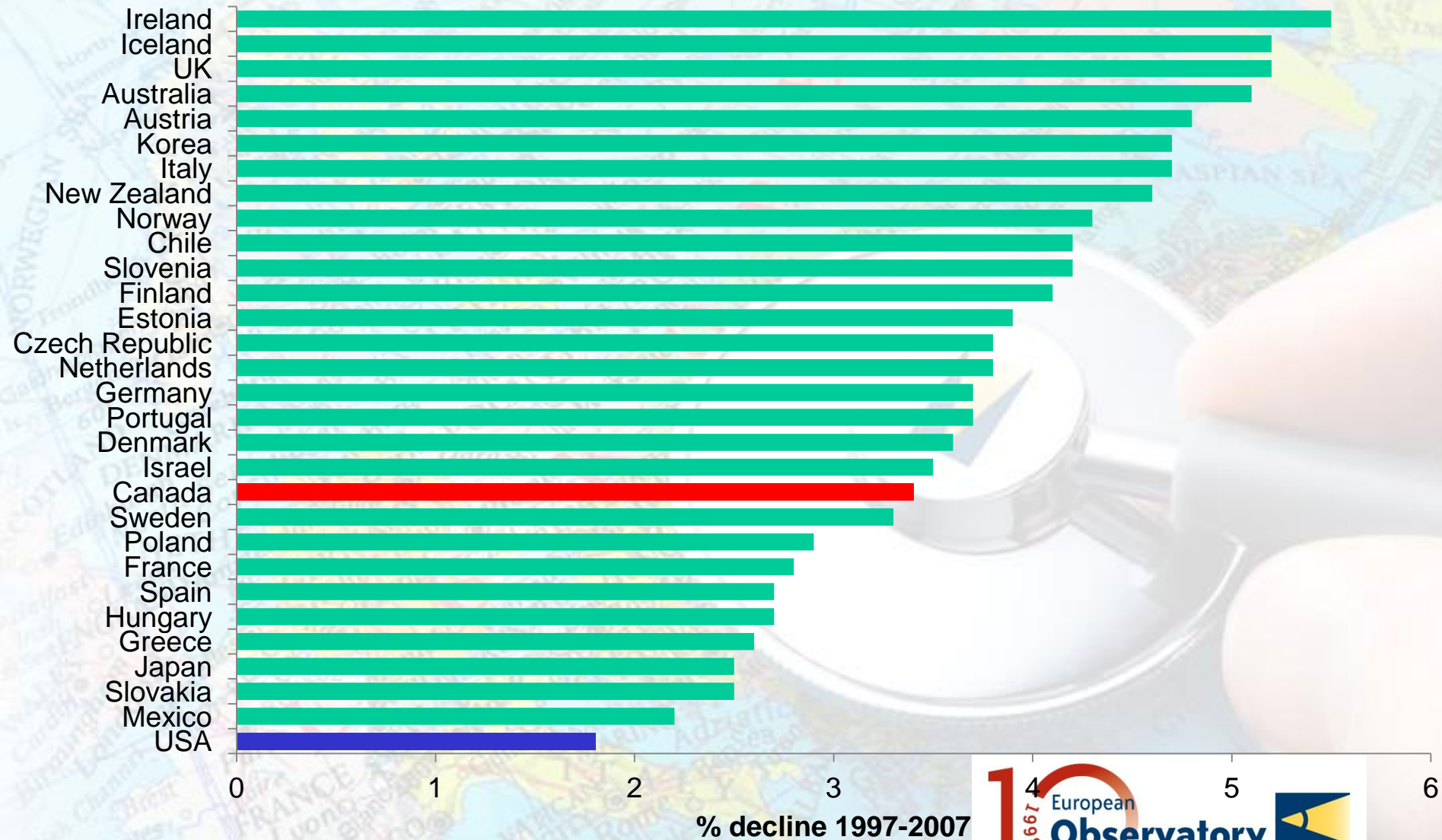
# But some challenges

- Need for regular revisions
  - Emergence of new diseases (e.g. AIDS)
  - Emergence of new treatments (e.g. Anti-retrovirals)
  - Reduction to negligible levels of some causes of death (smallpox, polio)
- Interpretation
  - Small numbers in small populations

# Deaths from causes amenable to medical care, 2007 or nearest year



# Percentage change in avoidable mortality: 1997-2007



**But how do we interpret the data?**

"the best medical care system in  
the world"

Gov. Bob McDonnell (R-Va)

"the best" system "the world has  
ever known."

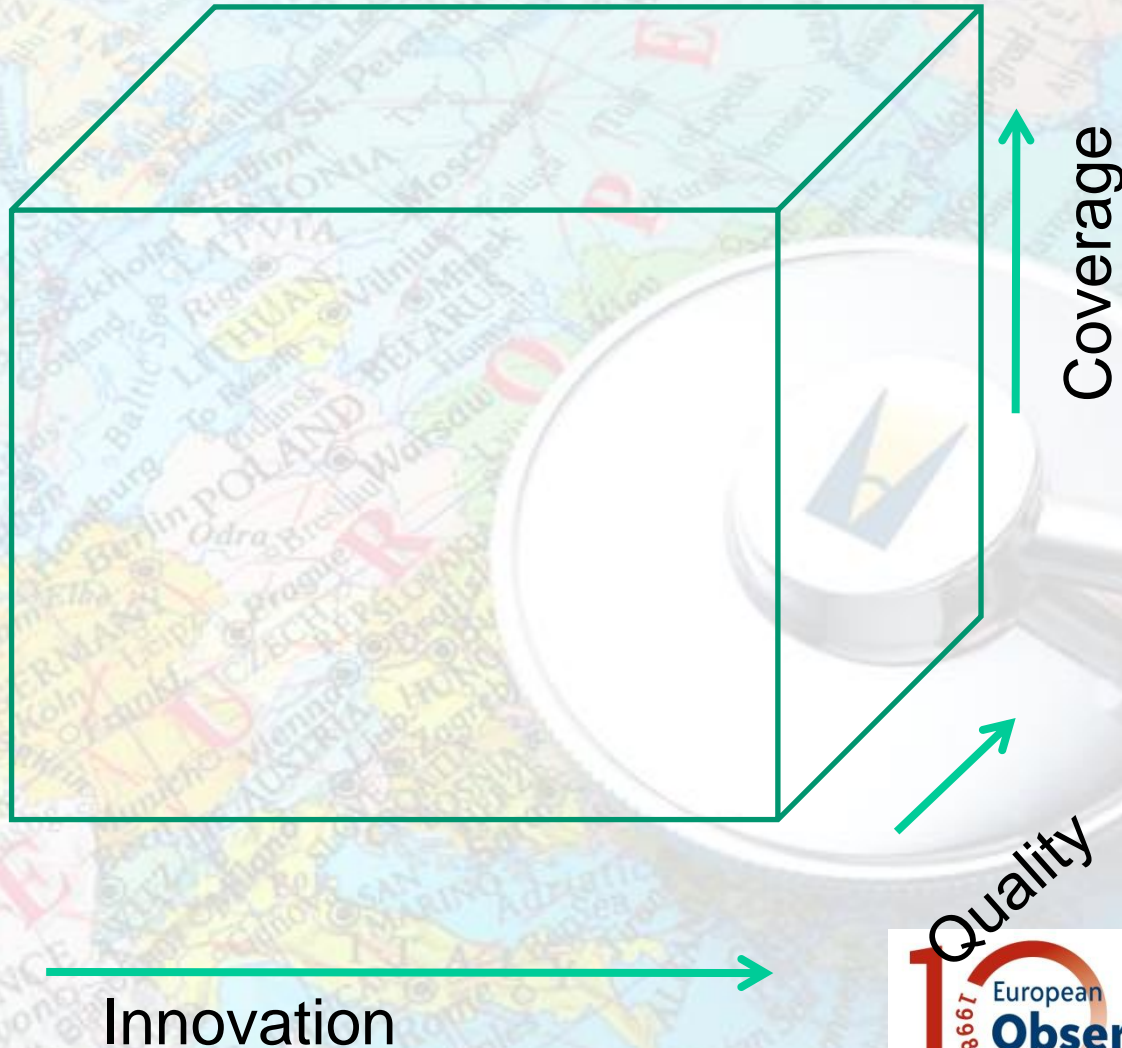
Sen. Richard Shelby (R-Ala.)

Democrats must not "destroy  
the fundamental market system  
that's made the American health  
care system the best in the  
world."

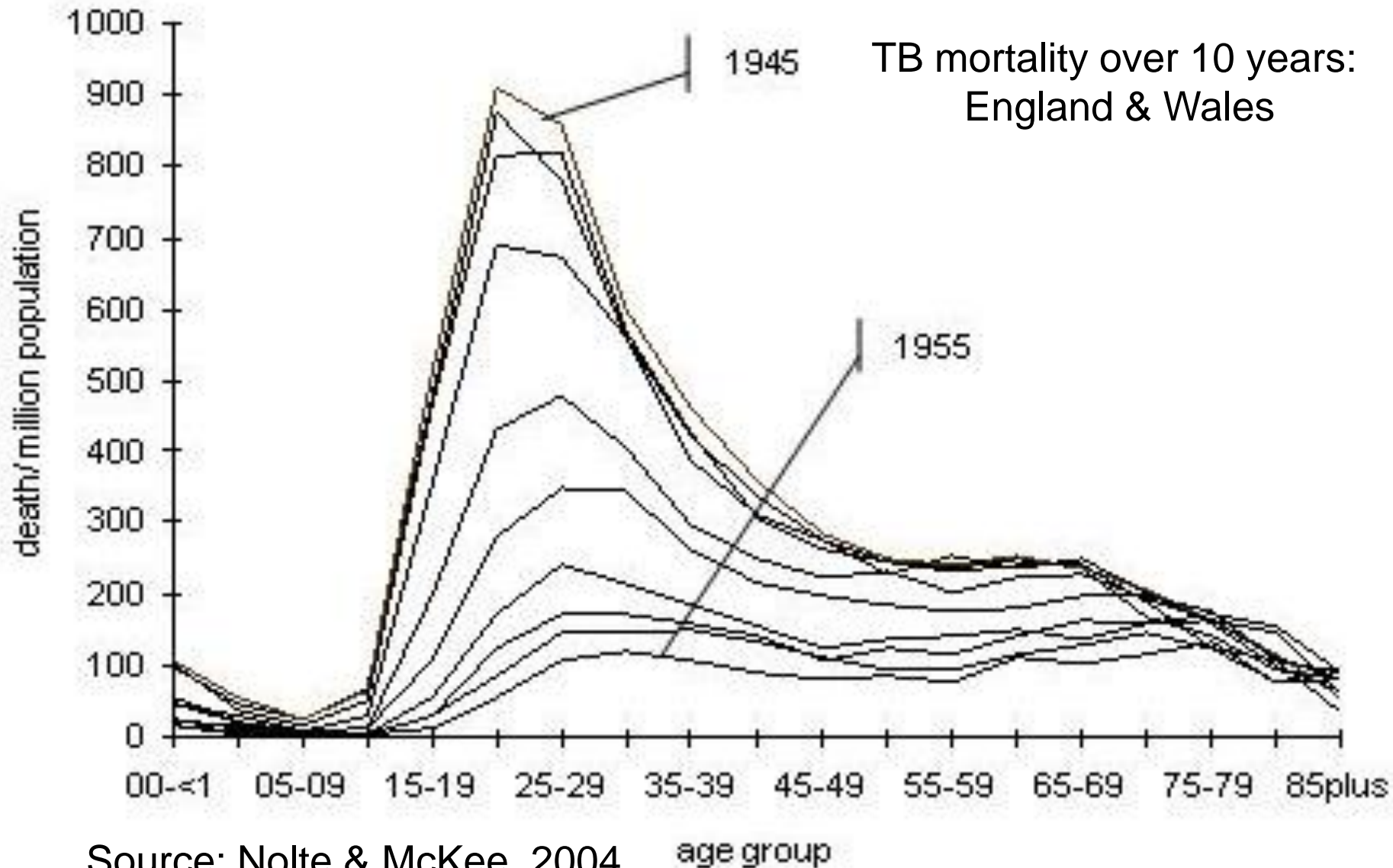
Rep. Joe Barton (R-Texas)

# If differences are real, what do they mean?

## Different ways of creating better health



# Innovation: Magic bullets are very rare



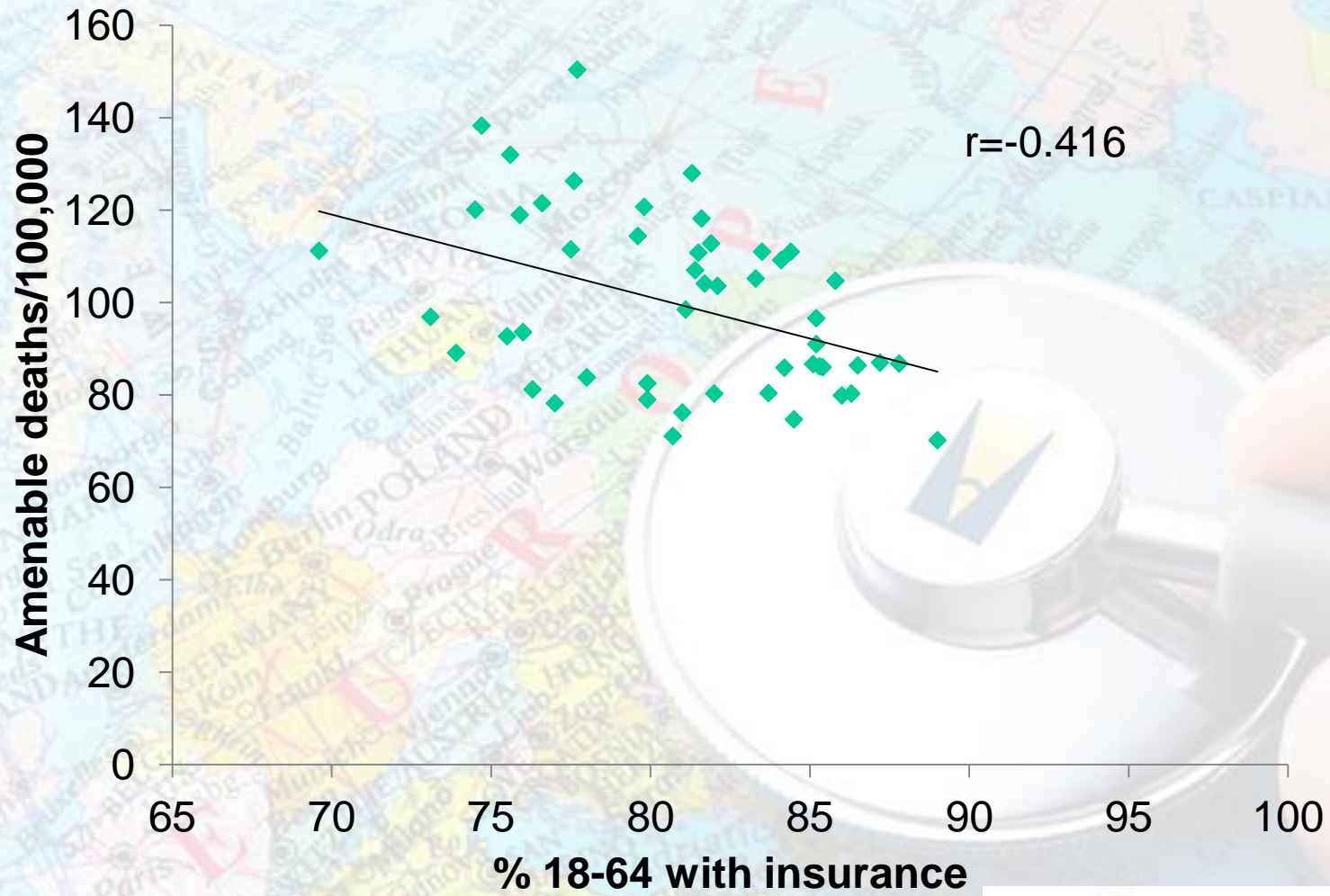
Source: Nolte & McKee, 2004



# Assessing the impact of innovation

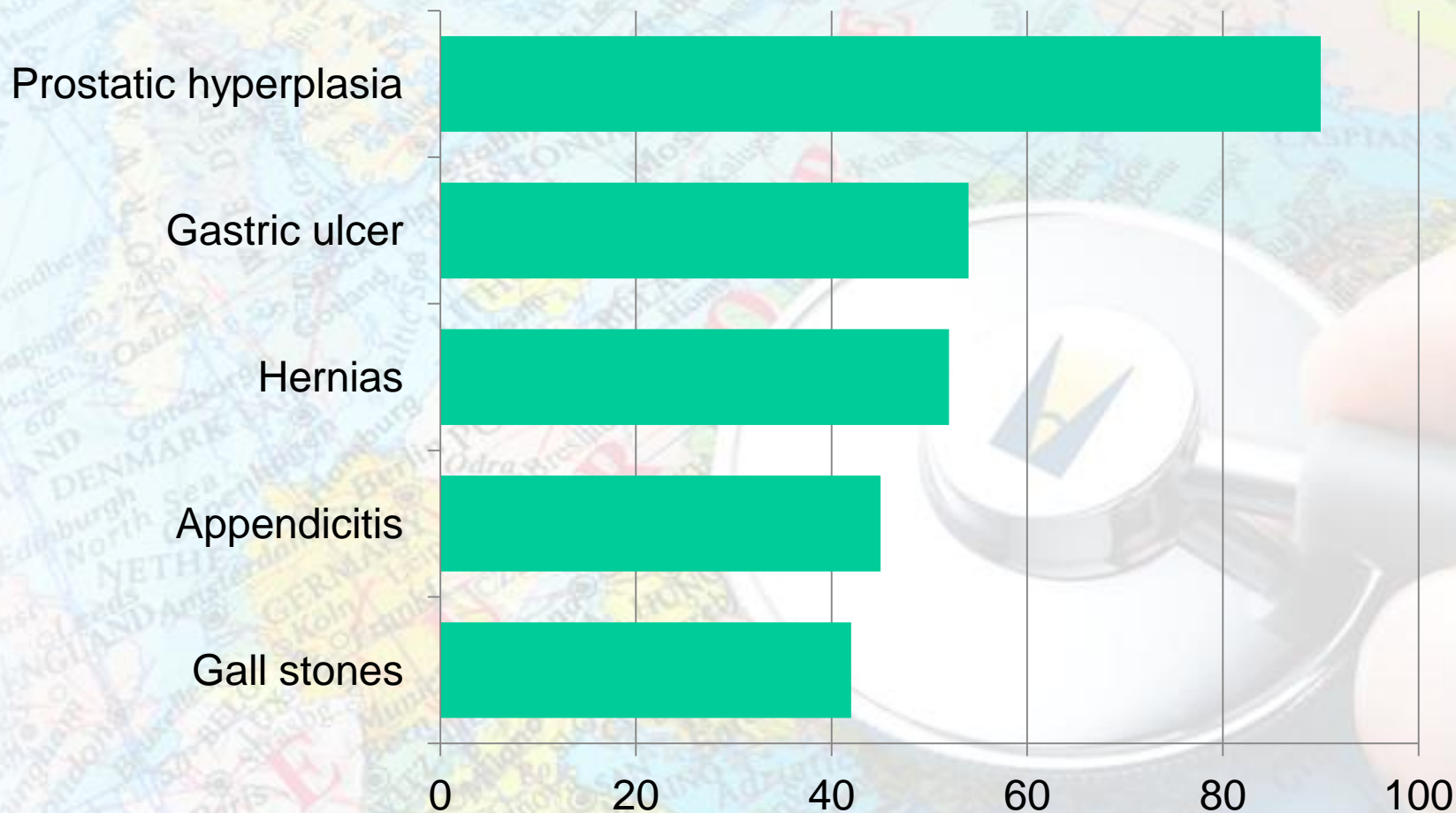
- Progressive gains in effectiveness of treatments
- Progressive improvements in safety and reduction of side effects
- Progressive experience by health professionals with use of new pharmaceutical/technology
- Expansion of indications
- RCTs compare innovation with best existing treatment
- RCTs undertaken on highly selected subjects .... by highly selected practitioners .... In highly selected centres
- Few RCTs have mortality as an outcome
- Variable lags between innovation and reduction in mortality

# Coverage: Association between insurance coverage and amenable mortality in US States



# Safer surgery

percentage reduction in mortality in England and Wales 1979-2000



# Quality: Improvements in trauma care in the UK

## Potential reasons

- More patients seen by senior doctor
  - More staff with advanced life support training
- Improved co-ordination of services
  - Introduction of audit system

Source: Lecky et al., Lancet 2000

# Using avoidable mortality

- Avoidable mortality is a useful concept
  - Adopted by English Dept of Health, Commonwealth Fund, OECD, Statistics Canada, and others
- It is an indicator of what is happening
- But it is only a start
  - Data artefact
  - Innovation
  - Coverage
  - Quality

# A physician's perspective: Patient Reported Outcome Measures

- Choice
  - 3,215 instruments reported in English language literature in 2007!
- Type
  - Generic
  - Disease specific
  - Patient-generated
- Meaning
  - Reliability
    - Internal consistency
    - Reproducibility
  - Validity
    - Criterion – agreement with gold standard
    - Content – does it measure what it should?
    - Construct – does it behave as it should?

# PROMS

- Responsiveness
  - Does it change as patient's condition changes?
- Precision
  - Does it capture accurately the full spectrum of severity?
  - Floor and ceiling values?
- Timing
  - When to assess outcome?
- Interpretability
  - What does a change in a score mean?
  - For example, compared to a major life event like bereavement
- Acceptability
  - Will patients use it?
- Feasibility
  - Can it be used in practice?

# PROMS: examples of use

- Cataract surgery
  - Scores on the SF-36 became worse for many patients following surgery
  - Improved vision allowed increased mobility, unmasking locomotor problems
  - Disease-specific measure (VF-14) showed that most people benefited
  - But not all, and some were being operated on with very limited impairment (and thus scope to benefit)

Source: McKee M, Whatling JM, Wilson JL, Vallance-Owen A. Comparing outcomes of cataract surgery: challenges and opportunities. J Publ Health 27:348-52



# Varicose veins

- EuroQuol (EQ) 5D:
  - average preoperative score 0.773
  - postoperative health gain 0.094.
  - 53% of patients had improved postoperative scores
  - 33% reported no change
  - 14% reported reduction in postoperative score
- Aberdeen Varicose Vein Questionnaire
  - average preoperative score 18.75
  - average postoperative score 10.76
  - lowest improvements witnessed in patients with lowest preoperative scores (least severe symptoms).
- Other questions
  - 90.3% reported improvement in their problems from varicose veins
  - 85% described their operative results as excellent, very good or good.

Source: Nesbitt C, Wilson WR, Lees TA, Stansby G. Interpretation of patient-reported outcome measures for varicose vein surgery. *Phlebology*. 2011 Sep 21. [Epub ahead of print]

# Barriers to use

- Scepticism among practitioners
  - Concerns about reliability and validity (Gilbody et al., 2002)
  - Concerns that they added nothing (McHorney & Bricker, 2002)
  - Concerns about ability to interpret them (Baars et al, 2004)
- Physicians randomised to receive PROMs from patients with rheumatoid arthritis
  - Those receiving information valued it
  - But no differences in processes or outcomes of care (Kazis et al, 1999)

# But some impact

- RCT of doctors in outpatient palliative care receiving graphic summaries of QoL and cancer specific questionnaire (*Detmar et al, 2002*)
  - Consultations taped
  - Those with data spent more time discussing QoL
  - Higher proportion of health problems identified
- RCT of patients given cancer-specific questionnaire with feedback to doctors (*Velikova et al., 2004*)
  - Intervention patients had more discussion of QoL
  - Those who discussed QoL more had greater improvements in it
  - Suggestion that PROMS and feedback most effective when seeing different doctors

# Logistic barriers

- Concerns about time constraints (*Taylor et al, 1996*)
- Concerns about whether administrative support was adequate (*Gilbody et al. 2002*)
- Concerns about cost
  - But one UK study suggests additional cost ~ CAN\$ 10/ patient
- However:
  - Advances in information technology offer potential for simplification, reductions in cost, and ease of data presentation
- Although
  - Issues of interpretation and application remain
  - Response rates often low
- How easy will it be to extend beyond elective surgery?

# Sticking with PROMS: A purchaser's perspective:

- Are outliers due to:
  - Inadequate risk adjustment?
  - Characteristics of measurement, such as skew
- Use of 99% confidence intervals and bootstrapped estimates produce different numbers of outliers

# A government's perspective

- English Department of Health proposes to monitor performance of the NHS using regular population-based measurement with EQ-5D
- Potential problems:
  - Association between health care (in general) and EQ-5D scores unknown
  - Variability over time in EQ-5D scores unknown
  - Case-mix variables to adjust for unknown
  - Potential for perverse incentives (e.g. put everyone on Prozac)

*Source: Valderas, Fitzpatrick & Roland, 2011*

# A patient's perspective: Publication of performance data

- Selection of provider
  - Very little evidence that patients select providers, or market share changes, as a result of publication
  - Evidence that publication associated with cessation of practice by low volume surgeons
- Activities of hospitals
  - Good evidence that public reporting stimulates quality improvement activities (*Hibbard et al, 2003, Tu & Cameron 2003*)
  - Initiation of multi-disciplinary meetings, clinical guidelines, care reviews (*Rosenthal, 1998*)

# Public reporting

- Better outcomes?
  - Heavily contested
  - Evidence mainly related to cardiac surgery
  - Some evidence that rate of improvement faster where there is public reporting
  - Otherwise, results mixed
- Unintended consequences
  - Physicians and managers believe that it leads them to avoid difficult cases
  - Evidence unclear
  - Some suggestion that in-hospital mortality reductions compensated by post-discharge increases

Main issue: almost all evidence from the USA and may not translate to other settings



# Beyond the numbers

*“What can be counted does not necessarily count, and what counts cannot necessarily be counted”*

*Albert Einstein*

# Experiences in an English hospital...

- “in four days my bedding was only changed once although soiled by blood, IV fluids, and a leaky catheter”
- “despite high fever and being constrained by attachment to an IV, my sheets were never even straightened”
- “a cannula was replaced at one point but the old one was not removed for three hours because the nurses and the phlebotomist could not agree whose responsibility this was”
- “three staff nurses remarked in a 10 minute period on how I was due for paracetamol but none returned to give me the tablet”

# ... we have a long way to go

- “perhaps the most telling example, though, was the struggle over my attempt to get discharged. ... the only reason for detaining me was that I was receiving IV antibiotics. I pointed out firmly and repeatedly that this was absurd, since I could easily come and get these as an outpatient... junior clinicians told me it was organisationally impossible, but the consultant let slip that the problem was that they would have to ask the nurses to do them a favour by agreeing to manage the infusion”

# The real problem ...

- “Care was being delivered by a group of professional and semi-professional workers, each of whom occupied their own silo, occasionally picking up information from others to initiate some action, or acting in ways that triggered actions by others, but who were unable to see how they formed part of a whole system”

**But so far we have only been  
looking backwards**

# A high performing health system needs social entrepreneurs

- A social entrepreneur is someone who develops social innovation through entrepreneurial solutions. A social entrepreneur **takes notice of a social problem or need**, decides to passionately pursue it, **creatively innovates new solutions** and entrepreneurially addresses the issue through an organised 'business plan' approach, thus allowing the social entrepreneur to address the issue of sustainability of the social venture undertaken.

Wikipedia - Emphasis added

# The challenge

*“there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns, the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be the difficult ones.”*

# A more systematic approach

- Update of Rockefeller Foundation project that identified 4 systems providing Good Health at Low Cost:
  - Kerala
  - China
  - Costa Rica
  - Sri Lanka



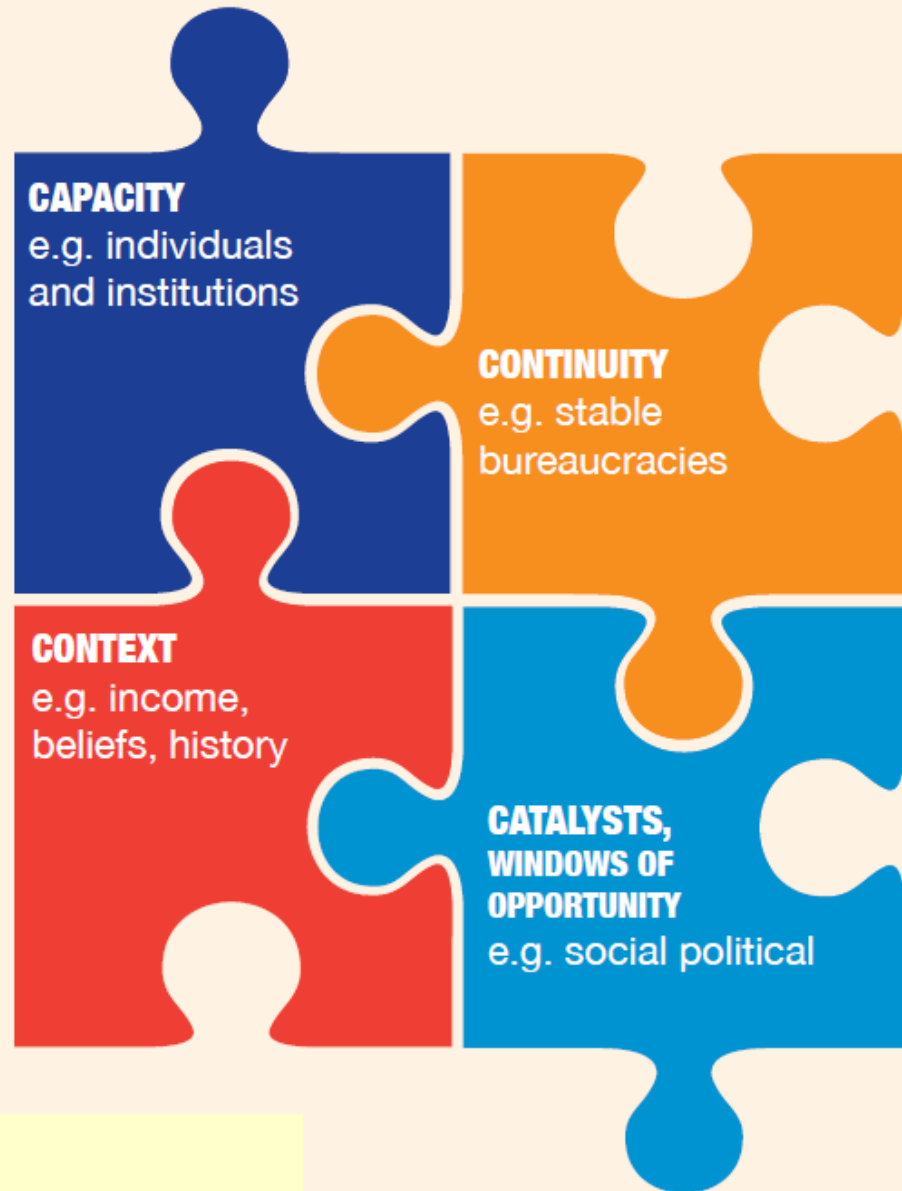
**'Good health at low cost'  
25 years on**  
*What makes a successful health system?*

Edited by Dina Iltis-Banerjee • Martin McKee • Arima Mills

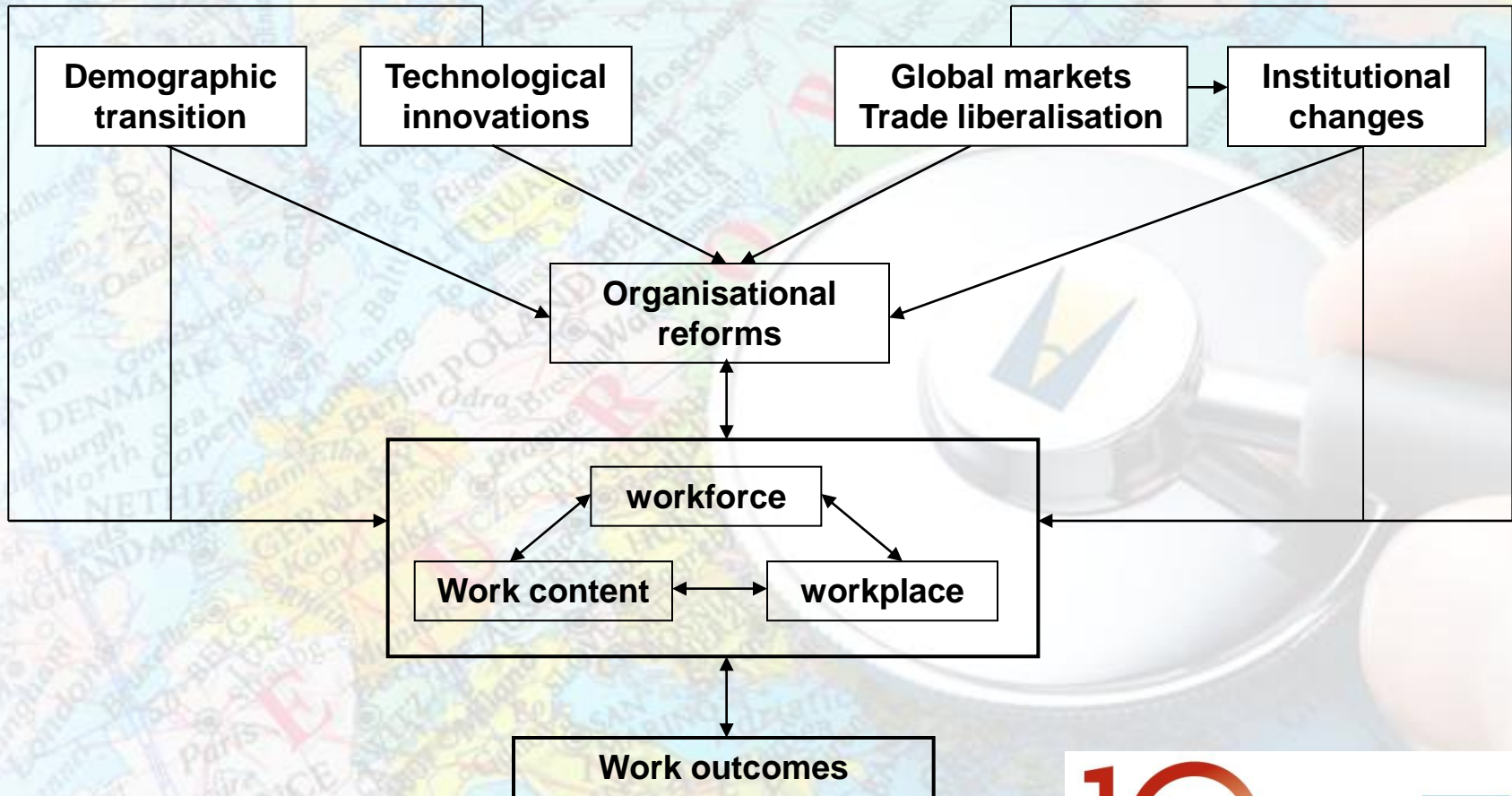


# Case studies in five additional countries

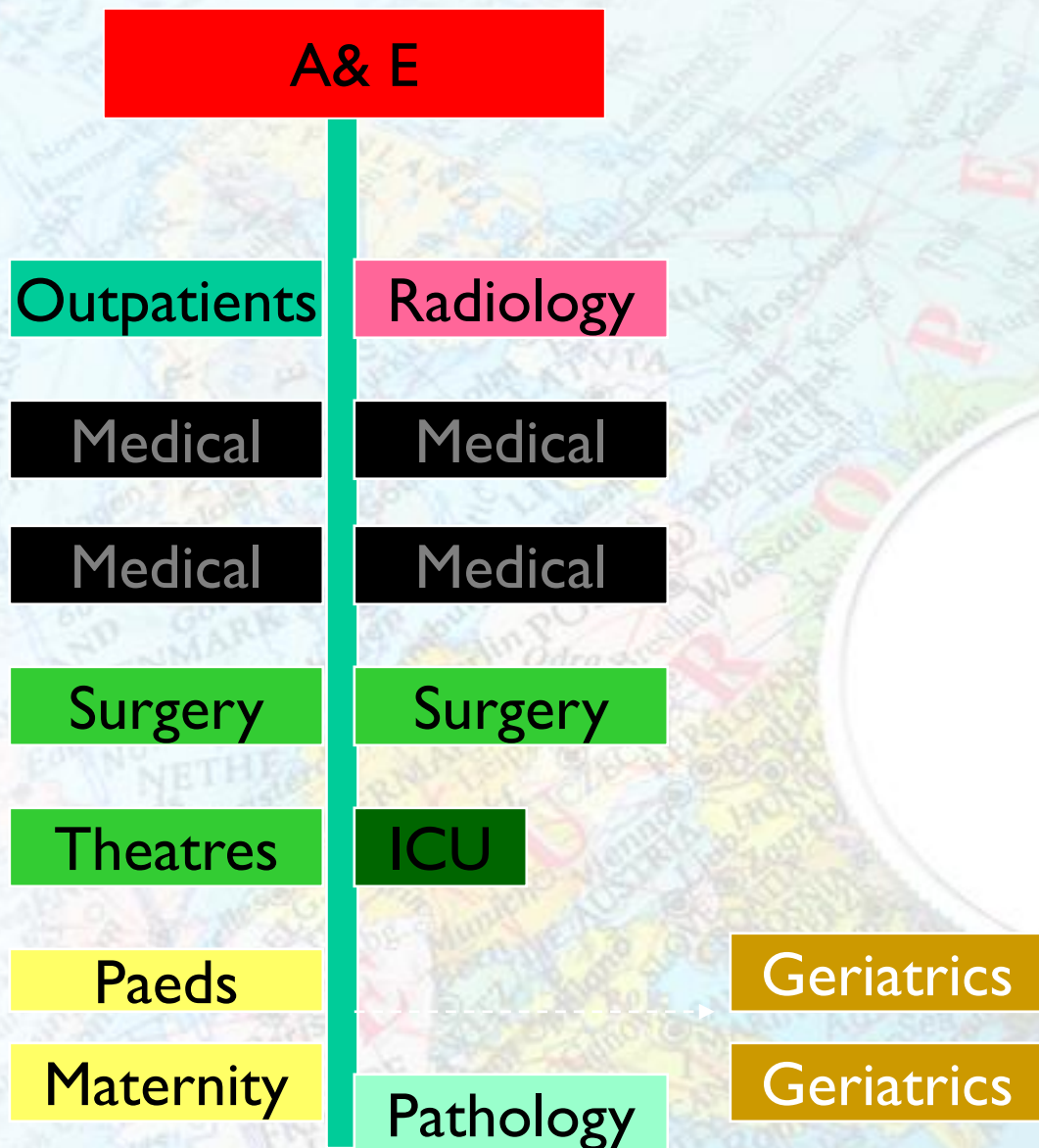
- Bangladesh
- Ethiopia
- Kyrgyzstan
- Tamil Nadu
- Thailand



# A framework for analysis

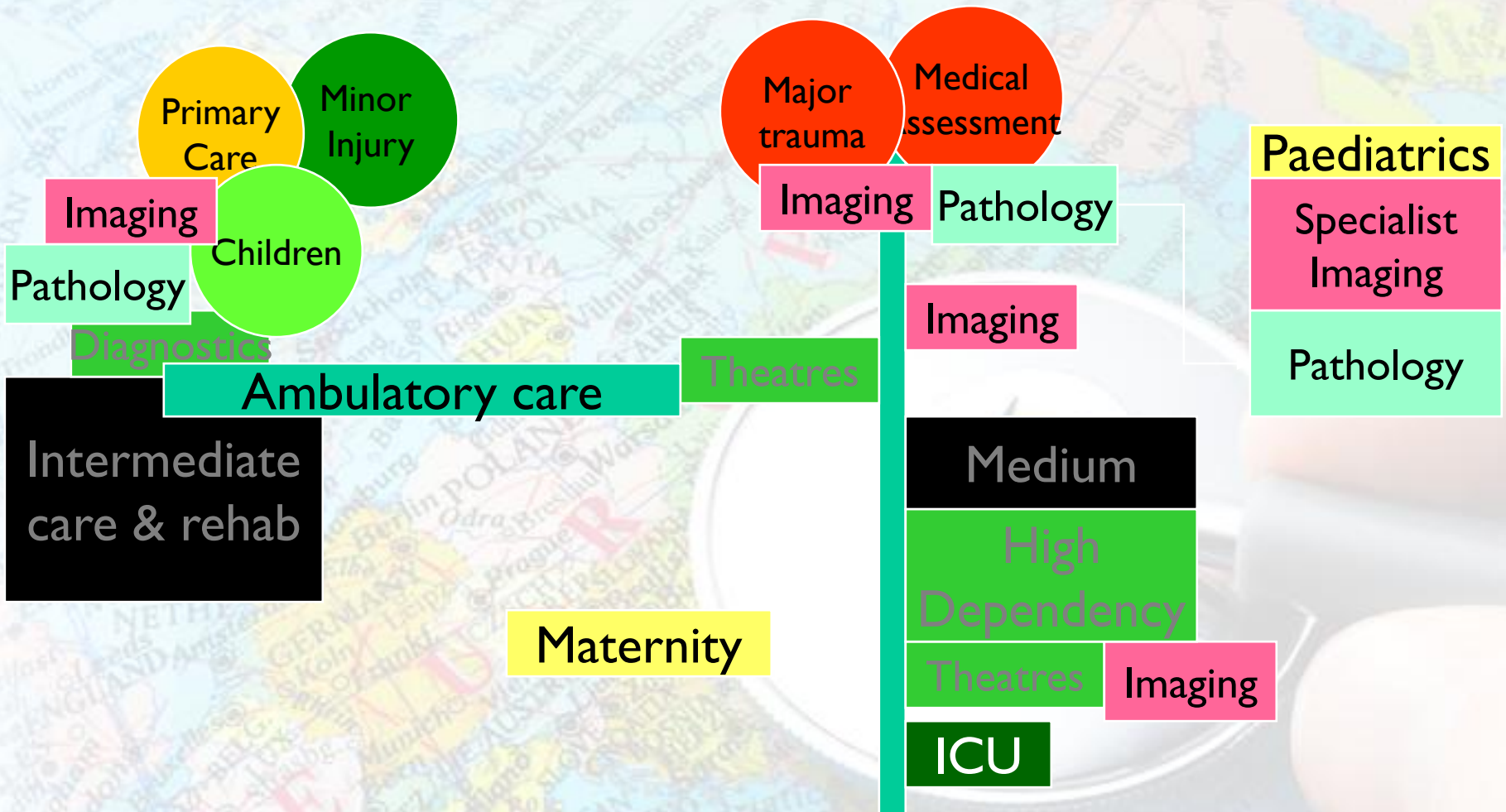


# The hospital of the past



Source: Edwards & McKee

# The hospital of the future?



Source: Edwards & McKee

# What have we learned?

- Foresight
  - Scanning the horizon
  - Identifying opportunities
  - Innovating
  - But **not** jumping on any passing idea
  - And seeing the big picture
- A supportive framework
  - Zones of stability
  - Sustained investment in resources

# In conclusion

- If we are to maximise performance we must begin by measuring it
- But we should not think that once we have measured what can be measured, we have all the information we need
- And by the time we measure it, things will already have moved on

**Thank you**

