Health Systems: How can we measure their performance and how do they contribute to patient-centredness?

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&

European Observatory on Health Systems and Policies
The health of nations

MODERN medicine may be good at gauging the health of patients, but it has proved less successful at taking its own pulse. Assessing the performance of a country’s health-care system is no easy task, because deciding what to include – from doctors to drugs to diet – is difficult, and because some chosen criteria, from infant mortality to patient satisfaction, are themselves hard to define. Making comparisons between countries is even trickier, because health-care systems differ radically in their financing and organisation, and in the social goals they set out to achieve.
The starting point: 2000 World Health Report

• First attempt to rank performance of 191 national health systems
• Aimed at identifying and measuring performance of member states on ‘key health system objectives’
• Examined whether each health system is performing as well as it can, given existing resources
• Based on Murray & Frank framework (2000)
Further development at WHO (2007): inputs = “building blocks”, “intermediate goals/outcomes” and “overall goals/outcomes”

Inspired by OECD, the European Commission’s Joint Assessment Framework

**Overall Health Outcomes**

*How healthy are citizens of MS and what are their health outcomes?*

**Determinants of the health care performance**

*Do all people in need of health care get access to quality health care?*

- **Access** (A)
- **Quality** (Q)
- **Resources** (R)

**Non-health care determinants**

*What is the general profile in terms of non-healthcare factors?*

- Health behaviours
- Lifestyle
- External factors not related to lifestyle

**Context information**

*Demographics, Poverty and social exclusion, GDP per capita, Educational status, Spending on Health*

*Source: Commission services (2013)*
Both population health outcomes and responsiveness are the multiplicative effect of accessibility and quality:

- High accessibility but bad quality as well as
  low accessibility but high quality

lead, on the population level, to inferior outcomes (but pointing to the problem is important for deciding on reform need)
My combined performance framework
(incl. costs/ efficiency and relationship to WHO dimensions)

Access(ibility) incl. Financial protection

Quality (for those who receive services)

Population health outcomes
(system-wide effectiveness, level & distribution)

Responsiveness (level & distribution)

Inputs (money and/or resources) (Allocative)

Efficiency (value for money, i.e. population health and/or responsiveness per input unit)

Health system performance

„TRIPLE AIM“:
Access ↑
Quality ↑
Costs ↓
The access(ibility) component
(denominator: population/persons with need)

Need (by socio-economic status, ethnicity/migration status etc.)

Unmet need

Realised access

Unmet need

coverage (financial issues)

availability of care

waiting, acceptability etc.

Population coverage
Content of the benefits basket
Cost-sharing arrangements
Geographical factors
Choice among available providers
Organizational barriers
Preferences

x Quality = Outcomes (population health & responsiveness)
1st dimension/ population coverage: the importance is known usually by U.S. data; here: access problems in 2012

- Experienced cost-related access problem: 63% uninsured, 27% insured all year
- Serious problems/unable to pay medical bills: 42% uninsured, 15% insured all year
- Spent $1,000 or more out-of-pocket: 39% uninsured, 42% insured all year

Source: 2013 Commonwealth Fund International Health Policy Survey in Eleven Countries.
coverage (financial issues)

2nd dimension/ covered benefits also matter: e.g. gaps in dental care

Skipped Dental Care Because of Cost in Past Year

- Covered in basic package
- Complementary coverage high
- Not covered

Own elaboration based on data from 2016 Commonwealth Fund International Health Policy Survey in Eleven Countries.
Experienced cost-related access problem*

* Had a medical problem but did not visit doctor; skipped medical test or treatment recommended by doctor; or did not fill prescription or skipped doses because of cost.

Source: modified from 2016 Commonwealth Fund International Health Policy Survey in Eleven Countries.
Urban-rural discrepancies are vary drastically between countries – with definite scope to learn from another.

**5.10. Physician density, rural vs urban areas, 2015 (or nearest year)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Predominantly urban</th>
<th>Predominantly rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovak Republic</td>
<td>6.8</td>
<td>x 2.5</td>
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<tr>
<td>Czech Republic</td>
<td>6.7</td>
<td>x 2.3</td>
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<td>Portugal</td>
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<td>x 2.3</td>
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<td>Hungary</td>
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<td>x 2.3</td>
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<td>Norway</td>
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<td>x 2.3</td>
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<td>Switzerland</td>
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<td>x 1.0</td>
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StatLink: [http://dx.doi.org/10.1787/888933603279](http://dx.doi.org/10.1787/888933603279)
Waiting (here: >4 weeks for a specialist appointment) is a general problem, but some countries see improvements and others not.

Own elaboration, data: Commonwealth Fund International Health Policy surveys, 2005-2013; in 2016, the respective question asked for >2 months.
Unmet need in EU-28
(for costs, distance, waiting), 2010-2016

Own elaboration, data: EU-SILC, various years
Unmet need in EU-28 by income quintiles (for costs, distance, waiting), 2016

Compare Estonia & Greece: almost same average but very different in equity terms

Unmet need in EU-28 by income quintiles (for costs, distance, waiting), 2016

Own elaboration, data: EU-SILC, various years
Inequity of physician visits by income (and equal need) in many countries (year = 2000) – and a real problem in certain ones with poor seeing GPs and rich seeing specialists

Outpatient contacts/ year

EU average

High inpatient & outpatient utilization

Low inpatient & outpatient utilization

EU average

Acute care discharges/ 100/ year

X - Acute care hospital discharges per 100, Last available
Y - Outpatient contacts per person per year, Last available

Realised access

Austria
Belgium
Bulgaria
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Italy
Latvia
Lithuania
Netherlands
Poland
Portugal
Slovakia
Slovenia
Spain
Sweden
Switzerland
United Kingdom
EU

Y = 0.2769X + 2.24

Outpatient contacts/ year

Acutecare discharges/ 100/ year
The condensed OECD report card for Access

<table>
<thead>
<tr>
<th>Country</th>
<th>Population Coverage</th>
<th>Share of Out of Pocket Expenditure</th>
<th>Waiting Times for Cataract Surgery **</th>
<th>Consultations Skipped due to Cost *</th>
<th>Age-sex standardised rate per 100 population</th>
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<td>2.5</td>
<td>-</td>
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<td>22.3</td>
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</tbody>
</table>

* Poland is excluded from the standard deviation calculation. ** Estonia and Poland are excluded from the standard deviation calculation. The values for Australia and Canada are reported in median number of days, rather than mean.

Note: Data on population coverage, share of OOP and waiting times refers to 2015, consultations skipped due to cost refer to 2016. Indicators are taken from Chapter 5.

Source: OECD Health Statistics 2017; Commonwealth Fund International Health Policy Survey 2016 and other national sources.
The quality component (denominator: patients/ persons receiving services)

Access(ibility) incl. Financial protection

Quality (for those who receive services):
- Q1. Effectiveness
- Q2. Safety
- Q3. Patient experience

= Population health outcomes (system-wide effectiveness, level & distribution)

Responsiveness (level & distribution)

Health-service only performance dimensions – usually the focus when clinicians talk about the issue
What encompasses Responsiveness?
An expanded version to the original WHO concept

Respect-for-Persons

- Respect for the dignity of a person
- Confidentiality of information
- Participation in decision-making (autonomy)
- Clear and understandable communication
- *added*: trust

Client or patient orientation

- Choice of provider
- Prompt attention
- Quality of basic amenities
- Social support by networks (only inpatient care)
- *added*: coordination and continuity of care

Sources: Valentine et al. (2008) and Röttger, J, Blümel, M, Fuchs, S, Busse, R (2014)
6.2. Doctor providing easy-to-understand explanations, 2010 and 2016 (or nearest year)

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.
1. National sources.
2. Data refer to patient experiences with regular doctor.
Source: Commonwealth Fund International Health Policy Survey 2016 and other national sources.

Source: OECD, Health at a glance 2017, Data: Commonwealth Fund International Health Policy Survey 2016 and other national sources.

http://dx.doi.org/10.1787/888933603374

6.3. Doctor involving patient in decisions about care and treatment, 2010 and 2016 (or nearest year)

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas.
1. National sources.
2. Data refer to patient experiences with regular doctor.
Source: Commonwealth Fund International Health Policy Survey 2016 and other national sources.

Source: OECD, Health at a glance 2017, Data: Commonwealth Fund International Health Policy Survey 2016 and other national sources.

http://dx.doi.org/10.1787/888933603374
How can we assess the effectiveness of ambulatory care?
A major patient-relevant outcome:
Not being hospitalised in case of chronic conditions ("avoidable hospital admissions")

7x rate in Italy
How can we assess the effectiveness of inpatient care?
AMI letality of inpatients ... during hospitalisation only

To get a sense of dimensions: DE has 200,000 AMI hospitalisations / year → 8,000 more deaths compared to NO

... and including the more relevant first 30 days
Extending the time horizon to 5 years for cancer patients

6.34. Breast cancer five-year net survival, 2000-2004 and 2010-2014

Note: 95% confidence intervals have been calculated for all countries, represented by grey areas. Expected updates in the data may reduce the survival estimate for Costa Rica.

1. Data with 100% coverage of the national population.

Source: CONCORD programme, London School of Hygiene and Tropical Medicine.

- 10.9% die within 5 years
- 26.5% die within 5 years
... for which even global data are available (with sometimes surprising results; CONCORD-3, 2010-14)

Quelle: Allemani et al., Lancet 2018
The condensed OECD report card for Quality

<table>
<thead>
<tr>
<th>OECD</th>
<th>Asthma &amp; COPD Hospital Admissions</th>
<th>Antibiotics Prescribed</th>
<th>Acute Myocardial Infarction Mortality*</th>
<th>Colon Cancer Survival</th>
<th>Obstetric Trauma (Instrument) **</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD</td>
<td>236</td>
<td>20.6</td>
<td>7.5</td>
<td>62.8</td>
<td>5.7</td>
</tr>
</tbody>
</table>

- **Better than OECD average**
- **Close to OECD average**
- **Worse than OECD average**

Note: All data refer to 2015 or nearest year. Indicators are taken from Chapter 6. * Mexico is excluded from the calculation of the standard deviation. ** Canada is excluded from the calculation of the standard deviation. Source: OECD Health Statistics 2017.
The population/system-wide outcomes

\[
\text{Access(ibility)} \quad \times \quad \text{Quality} \\
\quad \text{(for those who receive services)} \\
\text{Inputs (money and/or resources)}
\]

\[
\text{Population health outcomes} \\
\text{(system-wide effectiveness, level & distribution)}
\]

\[
\text{Responsiveness} \\
\text{(level & distribution)}
\]

\[
\text{(Allocative)} \\
\text{Efficiency} \\
\text{(value for money, i.e. population health and/or responsiveness per input unit)}
\]

The area with the least agreement but highest political relevance
How can we calculate the health system contribution to health?

- Environment
- Lifestyle
- Socio-economic status/ education etc.
- Health care

Mortality/
(healthy) life expectancy

Avoidable mortality (amenable to health care)

Medical errors
The concept of avoidable mortality (AVM; also “amenable to health care”) 

• Deaths from certain causes that should not occur in the presence of timely and effective health care

• Introduced by David Rutstein in the 1970s (originally for quality assurance purposes)

• Walter Holland published European Community Atlas of ‘Avoidable Deaths’ in 1988; intends to provide warning signals of potential shortcomings in health care delivery

• Mackenbach et al. argue that associations between AVM and health care services are rather weak and inconsistent. Most health care measures only reflect quantity and not quality. Many studies use insufficient set of covariates.

• Nolte and McKee (2002) reviewed list of amenable causes of death
Mortality “amenable to health care”: latest European data (with major contributing diseases)
Applying the concept longitudinally...

Decrease in avoidable mortality per 100,000 persons aged 0-74, 2000-2011/14:

- Austria -54 (-42%)
- Denmark -55 (-40%)
- France -30 (-33%)
- Germany -49 (-37%)
- Netherlands -50 (-41%)
- United Kingdom -60 (-41%)

... Canada -32 (-29%)

Calculations by Observatory and author; Source: Busse et al., Lancet 2017
... and adding expenditure (→ efficiency) ...

Incremental cost-effectiveness (death rate decrease per $1000 spent more):
- Austria 25
- Denmark 25
- France 17
- Germany 19
- Netherlands 16
- United Kingdom 30
- Canada 18

Calculations by Observatory and author; Source: Busse et al., Lancet 2017
... and now including the U.S.

-37/ 100,000 persons (-25%)

-8/ $1000 spent more

Amenable mortality, all persons, 0-74
Age-standardized rates per 100,000

Total health expenditure, US$ PPP, per capita

Austria  Denmark  France  Germany  Netherlands  United Kingdom  Canada  United States

Calculations by Observatory and author; Source: Busse et al., Lancet 2017
In conclusion,

• to measure health systems’ performance, we need to agree what we mean,

• this should include what patients (and the rest of the population) value most: accessibility, quality, population-wide outcomes and efficiency (value-for-money),

• i.e. “patient-centredness” goes beyond the narrow dimension of “responsiveness”.

• There is a wide range of data available (more than many think) – but to use them improve performance requires (1) that we look at the data, (2) acknowledge scope for improvement, and (3) willingness to learn from others.