Introduction to
Prescribing Quality Indicators

Björn Wettermark
Piperska Berlin 2010
Outline

To give an introduction to important areas in PQI development and use

- Definition & taxonomy
- Datasources
- Validation
- Use
Prescribing Quality Indicators

- **Definition:** “A measurable element of prescribing performance for which there is evidence or consensus that it can be used to assess quality, and hence change it”

- QI is part of a set of quality improvement tools

WHO DURQUIM 2004
<table>
<thead>
<tr>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
</table>
| Guideline  | Systematically developed statements to help practitioners and patients make decisions in specific clinical circumstances. They essentially define best practice<sup>1</sup>  
| Indicator  | Retrospectively measureable element of practice performance for which there is evidence or consensus that it can be used to assess quality of care provided and hence change it<sup>6</sup>  
| Review criterion | Systematically developed statement relating to a single act of medical care.<sup>5</sup> The statement is so clearly defined that it is possible to retrospectively determine whether the element of care occurred<sup>4</sup>  
| Standard:  | The level of compliance with a criterion or indicator<sup>5</sup>  
| Target standard | Set prospectively and stipulates a level of care that providers must strive to meet  
| Achieved standard | Measured retrospectively and details whether a care provider met a predetermined standard |

Patients with a blood pressure > 160/90 mm Hg should have their blood pressure remeasured within 3 months.

If an individual patient’s blood pressure was > 160/90 mm Hg, was it remeasured within 3 months?

90% of practice’s patients with blood pressure > 160/90 mm Hg should have their blood pressure remeasured within 3 months.

80% of practice’s patients with blood pressure > 160/90 mm Hg had their blood pressure remeasured within 3 months.

---

Campbell et al BMJ 2003
Dimensions

- Perspective – patient, prescriber…
- Structure - process - outcome
- Drug oriented - disease oriented – patient oriented
(Quality) indicators for prescribing

- Patient-specific indicators
  - Disease-specific indicators
    - Drug-specific indicators
      - Drug-specific indicators with patient ind. data
      - Drug-specific indicators without patient ind. data
  - Cost & volume

Wettermark 2004
<table>
<thead>
<tr>
<th>Indicator Drug oriented</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Obsolete drugs</td>
<td>Long acting oral hypoglycaemic drugs</td>
</tr>
<tr>
<td>Ratio's of drug groups</td>
<td>Simavastatin/ other lipid lowering drugs</td>
</tr>
<tr>
<td>Global (non)adherence recommended drug choice</td>
<td>Low rate of co-amoxiclav/ amoxi over prescribing</td>
</tr>
<tr>
<td>over prescribing</td>
<td>% pts with AB</td>
</tr>
<tr>
<td>New drugs</td>
<td>ARB/ ACE + ARB</td>
</tr>
<tr>
<td>Cost conscious prescr.</td>
<td>Choramphenicol eye prep./ other AB eye preparation</td>
</tr>
<tr>
<td>Duplication</td>
<td>Oxazepam + diazepam</td>
</tr>
<tr>
<td>Dosage</td>
<td></td>
</tr>
<tr>
<td>Drug-drug interaction</td>
<td>Erythromycine &amp; CYP3A4 substrates (statines)</td>
</tr>
<tr>
<td>Range/ diversity of drugs used</td>
<td>DU90%</td>
</tr>
<tr>
<td>Compliance/ Persistence</td>
<td>Nr of days antihypertensives/ year</td>
</tr>
</tbody>
</table>

WHO DURQUIM 2004
TOTAL OUTPATIENT ANTIBIOTIC USE, IN 26 EUROPEAN COUNTRIES, 2002

Graph showing the total outpatient antibiotic use in 26 European countries in 2002. The categories include others, sulfonamides, quinolones, macrolides, tetracyclines, cephalosporins, and penicillins. The countries are ranked from the highest to the lowest usage.
Patient identity drug dispensing data

Opens up a new dimension of possibilities to monitor quality of drug prescribing

May be used to derive indicators focusing on

• Prevalence/incidence
• Combinations
• Drug as a marker of disease/risk
• First/second line drugs
• Refill adherence/persistance
Data sources

Prescriber → Pharmacy → Patient
Medical records

+ Contain clinical data, age & sex, patient id…
+ Reflects prescriber behaviour

- Not always a complete picture of a patients’ treatment
- Validity of diagnoses uncertain
- May be difficult to compare data from different settings
- Mainly small samples possible (but new technique and coding systems may facilitate)
- No information of the drug actually has been taken (exception hospital records)
Pharmacy dispensing data

+ May contain age & sex, patient and prescriber id
+ May include OTC and herbal products
+ Easily available and comparable in many countries if based on a common methodology, e.g. ATC/DDD

- Limited amount of clinical data
- May lack drugs dispensed without reimbursement
- Validity of data may vary
- Although closer to patients’ actual use, we still don’t know how the patients take their medicines
Data captured from patients

+ May contain clinical data, patient id…
+ Reflects patient behaviour (or what they claim to do!)

- Problems of recall bias
- Problems of overestimation of compliance
- Difficult to obtain clinically relevant data
- May be difficult to compare data from different settings
- Time consuming to collect. Only small samples possible
Why using registries for quality assessment

- The registries already exist (reduced time and cost)
- Large sample size (high statistical precision)
- Long-term and complete follow-up
- Much information has high validity
- Data collected routinely for other purposes than to monitor quality
Adams et al 1999
Validity is essential

The degree to which the indicator reflects the characteristic it is intended to measure

Content validity – evidence base & documentation

Face validity – relevance, credibility & acceptability

Concurrent validity – compared with gold standard

Construct validity – theoretical construct of quality

Predictive validity – predicts future outcome
Campbell et al 2003
Use of PQI

PQI are increasingly used…
- to improve quality of prescribing
- for accreditation
- linked to targets and financial incentives (pay-for-performance, pay-for-results)
- made publicly available
Table 11. Differences in professional and public indicators

<table>
<thead>
<tr>
<th>Professional indicators</th>
<th>Public indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on self-control and improvement</td>
<td>Focus on minimum quality and comparison</td>
</tr>
<tr>
<td>Relevant for professionals and management</td>
<td>Relevant for policymakers, inspectorate, insurance organizations, patient organizations</td>
</tr>
<tr>
<td>Specific and detailed</td>
<td>Non-specific, broad</td>
</tr>
<tr>
<td>No extended validation needed</td>
<td>Extended validation necessary</td>
</tr>
<tr>
<td>Not public oriented</td>
<td>Special infrastructure for registration</td>
</tr>
<tr>
<td>To learn from</td>
<td>Public</td>
</tr>
<tr>
<td>Fast, nice, teachable</td>
<td>To control and compare</td>
</tr>
<tr>
<td>Quality in terms of good-better</td>
<td>Long, hard, possible threatening</td>
</tr>
<tr>
<td></td>
<td>Quality in terms of good-bad</td>
</tr>
</tbody>
</table>
References

Thank you for your attention