Indicators and descriptors and how they can be used

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Danish College of Pharmacy Practice
Focus
- inspiration for workshop discussions

• The need for development of performance measures in European pharmaceutical care
  - Practice
  - Policy
  - Research
  - Patients
Outline of presentation

1. Basic concepts

2. Use of performance measures in pharmaceutical care

3. Examples to highlight issues and challenges for the future
   - Outcomes research
   - Explaining variation
   - Development and quality improvement
   - Management and documentation of pharmaceutical care systems
   - Quality management at pharmacy level
Basic concepts
Definitions - “indicator”

WHO glossary

- A variable with characteristics of quality, quantity and time used to measure, directly or indirectly, changes in a situation and to appreciate the progress made in addressing it.

JACHO

- Performance measure. A quantitative tool (for example, rate, ratio, index, percentage) that provides an indication of an organization's performance in relation to a specified process or outcome. See process measure and outcome measure.
Terminology in this presentation

**Indicators**

- Quantitative measures that will change when the process of care is carried out.

**Descriptors**

- Describe a process or a structure that are key conditions for quality. A descriptor does not - or hardly - change. Can be qualitative or quantitative.
Desirable measure attributes

www.qualitymeasures.ahrq.gov

**Importance**
- Relevance to stakeholders
- Health importance
- Applicable to measuring equitable distribution of health care
- Potential for improvement
- Susceptibility to being influenced by health care

**Scientific soundness**
- Explicitness of evidence
- Strength of evidence
- Reliability and validity documented
- Allowance for patient/consumer factor stratification
- Comprehensible

**Feasibility**
- Explicit specification of numerator and denominator
- Data availability (access and time)
Structure-process-outcome
- in Donabedian’s words

Structure
• The relatively stable characteristics of the providers of care, of the tools and resources they have at their disposal, and of the physical and organizational settings in which they work.

Process
• A set of activities that go on within and between practitioners and patients. ... Elements of the process do not signify quality until their relationship to desirable health status has been established.

Outcome
• A change in a patient’s current and future health status that can be attributed to antecedent healthcare.

Donabedian 1980
The ECHO model

“Outcomes research in pharmacy practice”

• Economic
• Clinical
• Humanistic
• Outcomes

Kozma 1995
# Domains for Health System Performance

- merge of frameworks from different countries/agencies

<table>
<thead>
<tr>
<th>Health outcome</th>
<th>Effectiveness</th>
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<td>Safety</td>
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<td>Appropriateness</td>
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<td>Capacity/competence</td>
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<td>Equity</td>
<td>Equity of</td>
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<td>-Outcomes, Access, Finance</td>
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<td>Responsiveness</td>
<td>Patient satisfaction</td>
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<td>Patient experience</td>
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<td>Acceptability</td>
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<td>Accessibility/timeliness</td>
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<td>Continuity</td>
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<td>Efficiency</td>
<td>Macroeconomic efficiency</td>
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<td>Micro efficiency</td>
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<td>Unit costs</td>
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OECD 2000
Use of quality measures
Monitoring pharmaceutical care in health care and pharmacy systems

**Stages**
- Development
- Dissemination
- Implementation

**Pharmacy systems**
- International
- National
- Pharmacy

**Society**
- Patients
- Health care systems
National Healthcare Quality Report

“First comprehensive effort to measure quality of health care in America”

Conclusions 2003:

• **High quality of care is not universal**
  - Cholesterol and hypertension control, depression medication non-compliance, polypharmacy in elderly

• **Opportunities of preventive care are frequently missed**
  - Smoking, cholesterol screening, screening for colorectal cancer

• **Management of chronic disease presents unique quality challenges**
  - Diabetes, smoking, chronic kidney disease

• **There is more to learn**
  - Knowledge, measures, technology

• **Greater improvement is possible**
  - Variation, use of best practice

Agency for Healthcare Research and Quality (AHRQ) 2003
How are quality measures used?

- **Research**
  - Programme evaluation, assess impact of policy changes, develop new knowledge of health care systems

- **Quality improvement**
  - Internal (within institution), external (across institutions)

- **Accountability**
  - Documentation for purchasers, consumers, accreditation, external quality audit
Use of measures - research

Examples:
Drug use indicators
Programme evaluation
Indicators for preventable drug related morbidity

Examples from US/UK Delphi panels

• Concurrent use of warfarin and oral/topical NSAID without monitoring INR within 10 days. (Bleeding risk)

• Concurrent use of warfarin and antibiotic and an antibiotic without monitoring INR within 5 days. (Bleeding risk)

• Concurrent use of two or more oral/topical NSAIDs for more than 2 weeks. (Dyspepsia, GI bleed)

• Use of oral/topical NSAID for 3 months or more in a patient with hypertension or congestive heart failure. (CHF, fluid overload)

• Etc.

Total list: 37 indicators

Morris, Cantrill, Hepler & Noyce 2002
Drug use indicators
- Examples suggested for the nursing home setting

Clinical management
- Use of 9 or more scheduled medications

Psychotropic drug use:

• Prevalence of
  - Antipsychotic use in absence of psychotic and related conditions
  - Antipsychotic daily dose in excess of guidelines
  - Antianxiety/hypnotic use
  - Hypnotic use on scheduled basis or more than two times per week
  - Any long-acting benzodiazepine

Posey 1996
Other significant measures of drug therapy quality

• Drug Related Problem Classifications
  • Processes with risk of loss of effect:
    • Untreated indication; Inappropriate drug; Too low dosage; Drug not received
  • Processes with risk of lack of safety:
    • Too high dosage; Adverse effects; Interactions; Drugs with no indication

• Medication Appropriateness Indexes

• Medication Error Classifications

Strand et al 1990
The Danish Community Pharmacy Evidence Database

- The aim of the database is to ensure that the pharmacy sector has access to updated knowledge of the effect of community pharmacy practice in society.
- The database contains 232 evaluated intervention studies in community pharmacy practice and the evidence on clinical, humanistic and economic outcomes.
- Evidence reports and individual datasheets (in Danish)

www.pharmakon.com
Evidence reports
- structure based on GPP guideline

1. Distribution and handling of prescriptions
2. Patient information on prescription medicine
3. Follow-up on patient outcome (Pharmaceutical Care)
4. Self-care activities
5. Health promotion
6. Information on rational use of drugs to other health professionals
7. Incidence of drug-related problems and adverse drug events in primary care
Report # 3 – Pharmaceutical Care

- 1519 abstracts evaluated for inclusion
- 50 articles evaluated in the report
  - Europe 23; Canada 6; Australia 2; USA 13

  A: 21 Randomized and controlled studies
  B: 5 Controlled studies
  C: 17 Before/after trial without control group
  D: 7 Descriptive studies
Types of effect measures

- Clinical and health-related indicators
- Economic analyses
- Satisfaction
- Knowledge/attitude/practice
- Drug-related problems
- Drug use
- Process indicators
Report # 3 – Pharmaceutical Care
- the evidence

• Pharmaceutical care can improve health related quality of life in Asthma, BP, BS, Cholesterol. Weaker evidence for the elderly.

• **Symptoms** are significantly improved in asthma and hypertension. There is no evidence in **change in symptoms** in elderly patients.

• Pharmaceutical care can improve clinical measures (BP, BS, Cholesterol)

• Some evidence for **reduced hospitalisation and care contacts** in elderly

• **Health Care costs** for elderly are reduced; **drug costs** are unchanged or increased.

• The patients enrolled in pharmaceutical care studies are **satisfied with the outcome and service.**
Report # 3 – Pharmaceutical Care
- more evidence

• There are contradicting results on effect on **knowledge** and compliance.

• There is evidence that **drug related problems (DRP)** are identified and solved during the pharmaceutical care process

• **The quality of drug therapy** is improved in asthma and cholesterol, but not in elderly programmes

• Process indicators: **GP accept rates and patient accept rates** are high

• Process descriptors: **no. of DRP, recommendations and consultations, time consumption**
## Pharmacy interventions
- as recorded by pharmacies

<table>
<thead>
<tr>
<th>% Patients counselled about:</th>
<th>Dyspepsia Intervention N=262</th>
<th>Hay fever Intervention N=345</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug related problems</td>
<td>29 %</td>
<td>30 %</td>
</tr>
<tr>
<td>Self-care problems</td>
<td>59 %</td>
<td>61 %</td>
</tr>
<tr>
<td>Patient perceived problems</td>
<td>15 %</td>
<td>25 %</td>
</tr>
<tr>
<td>Symptoms</td>
<td>32 %</td>
<td>46 %</td>
</tr>
<tr>
<td>Product information</td>
<td>32 %</td>
<td>66 %</td>
</tr>
<tr>
<td>Written information</td>
<td>34 %</td>
<td>79 %</td>
</tr>
<tr>
<td>Start treatment</td>
<td>22 %</td>
<td>55 %</td>
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</table>
Systematic process evaluation
- pseudo-customer scoring

• Was the service offered to the customer?

• Symptom assessment

• Assessment of the treatment

• Counselling and information about self-medication
  – Counselling based on identified problems
  – Relevant product information based on needs assessment

• Counselling about life style according to identified needs

• Was the customer referred to GP, if needed?

• Did the customer receive written information

• How was the quality of the symptom assessment, identification of problems (drug and life style related) and counselling?

• How was the quality of the dialog?
Variation and quality improvement
Variation
- same programme different results

• PCNE studies of programmes for asthma and elderly ran in 7-8 countries

• Examples of difference:
  - Asthma: Germans had effect on lung function and self-efficacy, the rest did not. Germans and Danes had effect on HrQoL
  - Elderly: Danes had effect on HrQoL, hospitalisations and health care cost, the rest did not
Explanations

• Indicators?
• Design and management of study?
• Process?
• Structure?
• System features?
System descriptors

- Basic education of pharmacy staff
- The role of the pharmacist/pharmacy
- Structure of pharmacy system (size, premises, staff, skill mix)
- Legal opportunities
- Drug reimbursement and insurance systems
- Health status
- Frequency of adverse drug events
- The national standard of health care
Facilitators of Implementation
- PCNE-Australia collaboration

Qualitative factors verified quantitatively

Values:
1. Professional and business advantage
2. Altruism

Facilitators:
1. Relationships with doctors
2. Remuneration
3. Patient expectation
4. Pharmacy layout
5. Manpower/staff
6. Communication/teamwork
7. External support/network assistance

Roberts et al 2004
MRC framework for trials of complex interventions

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
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<tbody>
<tr>
<td>Pre-clinical</td>
<td>Theory</td>
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<tr>
<td>Phase 1</td>
<td>Modelling</td>
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<tr>
<td>Phase 2</td>
<td>Exploratory trial</td>
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<tr>
<td>Phase 3</td>
<td>Definitive RCT</td>
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<tr>
<td>Phase 4</td>
<td>Long-term implementation</td>
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British Medical Research Council, April 2000
Phase 4 research: After the RCT?
- What we need to know - examples

- **The realistic implementation process**
  - How to account for differences and relate to outcomes
  - Implementation barriers and facilitators
  - Study effectiveness and negative consequences in full scale, “post marketing surveillance”

- **Optimisation research - not well developed**
  - Identify target groups with more benefit
  - Improve and focus processes and technology
  - Reduce resources
  - Optimise total health care model and role of pharmacy in the team (integrated care)
Future: Comparative research

- **Examples**
  - Compare pharmacy services to other models
  - Compare brief and comprehensive pharmacy models
  - Compare across health systems, between regions and between countries
  - Compare models of integrated care

- **Health Technology Assessments (HTA)**
  - Comparing benefits for alternative solutions to health care problems in relation to:
    - Technology (intervention processes and effects)
    - Organisation
    - Economy
    - Patient preferences
Quality management and documentation of practice

Examples:

• Drug therapy management in health care systems
• Pharmacy management
Pharmacy’s Framework for Drug Therapy Management in the 21’st Century

• Health care system is lacking in terms of meeting customer expectations in regard to drug therapy

• “The Grid and Self-Assessment Tool”
  - 250 specific components
  - Tasks, skills, functions
  - Applicable across environments

Academy of Managed Care Pharmacy 2002
Drug therapy management in health care systems

The patient safety approach
7 core areas
- Sequence following a patient’s care process

1. Fundamental skills, tasks, and functions
2. Health management, health promotion, and disease prevention
3. Appropriate patient assessment, diagnosis, and selection of drug therapy
4. Distribution providing accurate drug therapy and understandable and timely health information
5. Response to drug therapy monitored for effectiveness, adherence, avoidance of adverse effects, and drug therapy adjusted
6. Health system has appropriate drug use policy and benefit design
7. Ongoing assessment to ensure that results of drug therapy management lead to healthy individuals and population
#5.1: Patient response to drug therapy
- examples of requirements

1. Patient diagnosis and specific need considered when assessing response
2. Access to database for analysis of treatment
3. Database can identify non-adherence
4. Pharmacist and/or prescriber perform DUR
5. Automated DUP supplemented with periodic manual, patient specific DUR
6. Practitioners use each opportunity to assess existing therapies
7. Effective mechanism to inform physicians about patient response
8. Patient’s record is up-dated with suspected risk for ADE’s
9. Medications with critical adherence are flagged in record
10. Drug therapy problems are reassessed continuously
11. Procedures for identifying patients who have not received follow-up
Annual Quality Report 2003/2004
-Flevowijk Pharmacy

**Indicators**
Processes and outcomes

- Percentage of substitution
- Level of service
- Quality of stock
- No. of prescription-lines per day
- No. of Rx related actions per day
- No. of documented changes to Rx
- No. of actions per year
- No. of care conversations per licensed staff member
- No. of care modules and activity per month
- No. of Complaints and appraisals
- Personnel satisfaction survey
- Patient satisfaction survey

**Descriptors**

**Type of**
- Pharmaceutical care modules and projects
- Pharmacy Side-effect reports
- Manufacturer drug recalls and pharmacy actions
- Complaints and appraisals
Activity in 19 structured care activities is recorded and presented graphically:

- Asthma
- Benzodiazepines
- Diabetes I
- Diabetes II
- Stomach
- Eye
- Incontinence
- Medication after discharge
- Thrombosis
- Headache
- STD
- Positive medication monitoring
- Self care activities
- Other first issues
- Other informative counselling
Description of structure

• Vision and goals
• Staffing
• Education
• Collaboration with health care
• Tools and technology
• Etc.
Metamorphosis to patient care
- a change of culture

“Self-care and self-medication is implemented as a service now in our pharmacy... we were really turned on doing this project. And I may as well say at once that it is not as easy as you think, if it is going to have any impact.”
(participating pharmacy owner)
Thank you for your attention!