Healthcare Management: Topics and Methods
Healthcare Management

„Ludwig Kuntz“

1993 – 1995  Executive for Information Management at the University Hospital of Mainz
1995 – 2002  Head of Controlling at the University Hospital of Hamburg
1.4.2002  –  Professor for Business Administration and Healthcare Management
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Content of the Talk

1. Question
2. Healthcare Management and Health Economics
3. Healthcare Management: Faults and Methods
   - Examples „Operations Research“
   - Examples „General Business Administration“
4. Situation Analysis (Teaching and Research)
5. Summary
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Question
What is Healthcare Management?
Healthcare Management = Health Economics?
Which methods are used? What are topics?
 Relevant literature…?
Healthcare Management: A particular perspective!

**Medicine**  
(doctors, nurses, treatment, …)

**Economics**  
(state, system financing, insurance companies, …)

**Management**  
(executives, hospitals, costs, revenues, performance, …)

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Economic Perspective – Fundamental Papers


Ellis R. E., McGuire T.G.; Provider behaviour under prospective reimbursement, Journal of Health Economics, 1986
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Economic Perspective – Fundamental Papers

• failure of the market
• price regulation should depend on the costs
• consideration of DRG-based reimbursement
  • risk of reducing quality
  • risk of patient selection
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Medical Perspective – Topics and Methods

• health status measurement
• assigning values to health states
• cost – benefit – analysis (CBA)
• cost – effectiveness – analysis (CEA)
• cost – utility – analysis (CUA)
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Medical Perspective – Topics and Methods

Example (Eddy, 1990):

Cost per Year of Life Saved for Different Frequencies of Screening

- 4 Years: $10,101
- 3 Years: $184,500
- 2 Years: $262,800
- 1 Year: $1,100,000

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Management Perspective – A long MS/OR Tradition


Content: 3 categories

1. Public policy and economic analysis

2. Clinical applications

3. Health care operations management
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Management Perspective – A long MS/OR Tradition


Public policy and economic analysis + Clinical applications

• Modeling Health Outcomes, Treatment for Opiate Addiction, HIV, pedriatic immunization, Kidney Allocation,…

• Modeling medical treatment, medical decision analysis, anesthesia patient risk reduction, Asthma policy model, radiotherapy treatment planning…

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Management Perspective – A long MS/OR Tradition


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Management Perspective – Method 1: “DEA“

Erroneous thinking: Comparisons are not possible!

- **Output** (e.g. cases DRG)
- **Input** (e.g. budget, investments)
- **Efficiency**
Management Perspective – Method 1: „DEA“

\[
\frac{Output}{Input} = \frac{g_1 \cdot x_{1i} + g_2 \cdot x_{2i}}{C_i} = E_i \\
E_i^* = \frac{E_i}{\max\{E_1, ..., E_n\}}
\]
Erroneous thinking: Decisions are based on averages!
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Management Perspective – Method 3: „Linear Programming“

Erroneous thinking: More is better!

DRG B

(0;500)

Intensive care unit

(500;200)

operating theatre

(800;0)

profit

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Management Perspective – Method 3: „Linear Programming“

Case Mix Optimization with „Budget constraint“ (Germany)
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Management Perspective – Method 4: „MAUT“

Erroneous thinking: Rational decisions are not possible!

System of different objectives!

- profit,…
- quality,…
- satisfaction,…

„good“ company
Management Perspective – Method 4: „MAUT“

System of different objectives! (Kleinmuntz/Kleinmuntz)

<table>
<thead>
<tr>
<th>Objective</th>
<th>Attribute</th>
<th>Score</th>
<th>Weights</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial</td>
<td>Present Value</td>
<td>100</td>
<td>16,90%</td>
</tr>
<tr>
<td>Financial</td>
<td>Resource Efficiency</td>
<td>100</td>
<td>16,90%</td>
</tr>
<tr>
<td>Quality</td>
<td>Facility Quality</td>
<td>50</td>
<td>8,50%</td>
</tr>
<tr>
<td>Quality</td>
<td>Patient / Family Satisfaction</td>
<td>75</td>
<td>12,70%</td>
</tr>
<tr>
<td>Quality</td>
<td>Patient Outcomes</td>
<td>70</td>
<td>11,90%</td>
</tr>
<tr>
<td>Quality</td>
<td>Physician Relationships</td>
<td>45</td>
<td>7,60%</td>
</tr>
<tr>
<td>Strategic</td>
<td>Information Integration</td>
<td>50</td>
<td>8,60%</td>
</tr>
<tr>
<td>Strategic</td>
<td>Market Share</td>
<td>100</td>
<td>16,90%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td></td>
<td>590</td>
<td>100,00%</td>
</tr>
</tbody>
</table>

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Management Perspective – Method 4: „MAUT“

Erroneous thinking: Rational decisions are not possible!

Example:

<table>
<thead>
<tr>
<th>weight</th>
<th>NPV</th>
<th>quality</th>
<th>satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information system</td>
<td>+ 500 Tsd. €</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>x-ray unit</td>
<td>+/- 0 €</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

„More than 250 applications in USA“ (Kleinmuntz/Kleinmuntz)
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Management Perspective – Method 5: „Portfolio Management“

Erroneous thinking: Every department is the best!

- attractiveness of market
- question marks
- surgery
- stars
- internal medicine
- cows
- obstetrics
- dogs
- cash
- rel. position in competition

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Management Perspective – Situation Analysis

(Michael Carter; Diagnosis: Mismanagement of resources-Ailing health care system desperately needs a dose of operations research, so why aren't more OR professionals responding to the emergency, OR/MS Today – 2002)

„Health care is a business like no other“

• multiple decision-makers with conflicting goals
• Control by government or insurance companies
• Politicians and advocacy groups try to influence

→ Recommendation: A „soft“ start of OR-projects
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Management Perspective – Situation Analysis


Study beginners in 2004 at „Faculty of Management, Economics and Social Sciences“ (University of Cologne)

Share "Healthcare Management"

[Graph showing percentage of research and teaching]
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Management Perspective – Situation Analysis

Four examples of papers in TOP-Journals (Financial Times)

- Llewellyn S, Northcott D.; The Average Hospital, *Accounting, Organizations and Society*, 2004
Results

• „Mergers did not shift away from low-profit services“
• „Technological status of groups affects the relative rate of use“
• „Hospitals are not learning from the daily problems“
• „If doctors, patients and clinical practices are moulded in costed categories, they become more standardizes and commensurate“
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Management Perspective – Summary of Analysis

What we have!

→ We have a lot of data!
→ „Healthcare is important and complex“

What scientists should do!

→ Work multidisciplinary (not only with doctors and nurses)
→ Don’t just transfer something known:

„While this study focuses on hospital nurses, the authors note that the lessons learned have implications for managers in other service organizations as well“

(Tucker and Edmondson, 2003)

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