INTEGRATED SYSTEM OF CHRONIC WOUND CARE HEALING – CREATING, MANAGING AND COST REDUCTION

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Overview

1. Status quo
2. Management
3. Analysis of costs
4. Analysis of quality and effectiveness
5. Further development
Chronic wounds are a widespread, cost-intensive and therefore very challenging problem in Germany, especially because of the aging of society and because of increasing expenses in the health care sector.

According to estimations, about 4 million patients suffer from chronic wounds of different types. For the most prevalent types of chronic wounds (i.e. leg ulcer = 1,5-2,0% and pressure ulcer = 1% of the whole population) there arise costs of about 5 billion Euro for the German compulsory health insurance.

And these costs are even underestimated as the indirect costs (e.g. income loss due to work reduction or lack of work) are not included. In this situation new cost-effective solutions are searched for, whereas the (health related) quality of life of the patients shall remain constant or even increase.
In Germany wound care management can roughly be divided into integrated and conventional wound care on the one hand and into modern and traditional wound care on the other hand.

A lot of actors in the health care sector regard the combination of integrated, multidisciplinary and modern wound care as the right solution. It might be that the wound treatment appears to be cheaper in other countries, but the main question is, if it is also better, i.e. if the quality of the treatment and therefore the quality of life of the patient is better.

According to first analysis a modern and integrated wound care management may reduce all in all 40% of treatment costs. This can be 2 billion euro p.a..[1]

Management

The changing process

- Health insurances
- Physicians
- Hospitals
- Home care
- Health services

Network management

Conventional wound care

Integrated wound care

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Management

Process leading management
Contract with Health Insurance Company
Networking including case management and finance management

Developing and management of algorithm of treatment
Continuous quality assurance

Close cooperation with and continuous trained by wound care Center
Close cooperation with network
Product information and continuous training

Wound Care Center

Nursing

Physician

Health Service

Patient
Process of wound healing

1. Primary contact
2. First diagnostics
3. Define treatment
4. Wound treatment
5. Following diagnostics
6. Final diagnostics

Patients have to enroll in this system
The documentation process

- Anamnesis
  - i.e. data of patient, vascular situation, wound situation etc

- Check list and data controlling

- Conduction document
  - i.e. wound classification, aims of therapy, state of pain, recommendations, nutrition, dates etc

- Follow up documentation
  - i.e. photo documentation, nursing documentation etc

- Costs of treatment
  - costs for personal and material

- Questionnaire
  - i.e. dates of patient, quality of life (Nottingham Health Profile - NHP), VAS Scale, Würzburger Wundscore (WWS),

A broad dataset allowed comprehensive analysis
Analysis of costs

International Cost comparison

Relative costs of providing leg ulcer care in Sweden, United Kingdom and Germany

<table>
<thead>
<tr>
<th>Country</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sweden [1]</td>
<td>1.332,00 – 2.585,00 Euro</td>
</tr>
<tr>
<td>United Kingdom [1]</td>
<td>814,00 – 1.994,00 Euro</td>
</tr>
</tbody>
</table>

The difference must be explained by differences in dressing change frequency and process of wound care management

Conventional treatment – duration of treatment [1] and cost calculation

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>L 89</th>
<th>Decubitus ulcer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of analysis</td>
<td>1.01.2005 – 31.01.2007</td>
<td></td>
</tr>
<tr>
<td>Number of patients</td>
<td>358</td>
<td></td>
</tr>
<tr>
<td>Duration of treatment [2]</td>
<td>217 days on average</td>
<td></td>
</tr>
<tr>
<td>Cost calculation (124,25 € p.d.)[3]</td>
<td>3.852,00 Euro on average</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>L 97</th>
<th>Ulcus Cruris</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period of analysis</td>
<td>1.01.2005 – 31.01.2007</td>
<td></td>
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<tr>
<td>Number of patients</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Average duration of treatment [2]</td>
<td>280 days on average</td>
<td></td>
</tr>
<tr>
<td>Cost calculation (124,25 € p.d.)[3]</td>
<td>4.970,00 Euro on average</td>
<td></td>
</tr>
</tbody>
</table>

[1] Orginal data of health insurance company, outpatient care and home care,
[2] Period of authorization of home care treatment, authorization by health insurance company
## Analysis of costs

Conventional treatment – duration of treatment and costs \[1\]

Case reflection – 9 cases, Diagnosis L 97 Ulcus Cruris

<table>
<thead>
<tr>
<th>Case</th>
<th>age</th>
<th>sex</th>
<th>Duration of treatment / in days</th>
<th>Number of wound dressing change</th>
<th>Costs of home care (\textit{without other costs like hospitalization, medication})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>81</td>
<td>m</td>
<td>712</td>
<td>839</td>
<td>7.631,00</td>
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<tr>
<td>2</td>
<td>84</td>
<td>w</td>
<td>715</td>
<td>700</td>
<td>6.971,00</td>
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<tr>
<td>3</td>
<td>82</td>
<td>w</td>
<td>478</td>
<td>478</td>
<td>3.533,00</td>
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<tr>
<td>4</td>
<td>74</td>
<td>m</td>
<td>518</td>
<td>451</td>
<td>4.337,00</td>
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<tr>
<td>5</td>
<td>66</td>
<td>m</td>
<td>374</td>
<td>315</td>
<td>2.596,00</td>
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<tr>
<td>6</td>
<td>61</td>
<td>w</td>
<td>730</td>
<td>730</td>
<td>7.460,00</td>
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<tr>
<td>7</td>
<td>53</td>
<td>m</td>
<td>477</td>
<td>448</td>
<td>3.914,00</td>
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<tr>
<td>8</td>
<td>66</td>
<td>m</td>
<td>695</td>
<td>624</td>
<td>4.468,00</td>
</tr>
<tr>
<td>9</td>
<td>82</td>
<td>w</td>
<td>730</td>
<td>1263</td>
<td>12.779,00</td>
</tr>
</tbody>
</table>

\[1\] Orginal data of health insurance company, outpatient care and home care, period 2005 / 2006
First trend results of Integrated system [1]

- Two from hundred customers of TAUNUS BKK (Health Insurance Company) are chronic wound patients. So TAUNUS BKK take a leading position at the head prevalence area.

- The direct costs of inpatient wound care treatment by TAUNUS BKK patients average out 6.600 € per patient. Indirect and intangible costs have to be added.

- The integrative wound care contract of TAUNUS BKK take high popularity by doctors, medical specialists, outpatients, medical and nursing services.

- A tendency analysis of patient data found out an eight weeks period of healing up by 50% and additional 25% in twelve weeks.

- Costs of treatment amount in three-quarter of cases clearly under 3.000 € per patient. This is a result of an integrative modern wound management procedure.

1. The integrated care system set basic preconditions with quality standards to participate in the network.

2. All necessary service providers are connected (via information technology)

3. Main partner of physicians, nurses and patients is the wound care center and its management. The center leads networking, case and quality management. The patients will be guided and appropriately controlled

4. A target oriented leadership of the patients involved a treatment controlling system. Patients, which are deviated from defined targets, will be noticed.
Controlling of treatment with defined parameters (i.e. period of disability) is a part of an integrated system and defined clinical pathways. This is a basic for patient oriented case management.

Two variables seem to have an essential effectiveness in reducing period of disability:

- **Structural quality assurance with securing the qualification of medical service and therapist**
- **Processual quality assurance with an quality steered case management**
Further development

Current projects (1)

Title of EU-project: “Efficiency and effectiveness of health investment - an international comparison in wound care management –”

Initial situation:
Chronic wounds are a widespread, cost-intensive and therefore a very challenging problem. Moreover, comparative studies on wound healing are scarce ⇒ research gap

⇒ Therefore we regard a cross-country comparison of different health care systems with regard to the wound care sector as essential!

Health effectiveness will be measured across the three central dimensions:
1) Structural quality
2) Process quality
3) Outcome quality

Main criteria to be measured: a) costs, b) pain reduction and c) quality of life
The main aim of the project is to provide first comparative data on a European level and to force an exchange of country-specific experiences.
Further development

EU-project - overview

Efficiency and effectiveness of health invest
- an international comparison in wound care management -

Comparison of different health care systems
  Different welfare states
  System-by-system approach

Structural quality

Outcome quality

Process quality

Empirical part: cross-country comparison
Investigation of health-effectiveness related to
  a) costs
  b) pain reduction
  c) quality of life

Main aim:
  Provision of first comparative data on a European level

Analysis:
  Efficiency and effectiveness of different health invests
  with regard to the wound care sector
  Evaluation of the different country-specific strategies

Exchange of experiences

Recommendations and future prospects
Further development

Current projects (2)

Title of promotion/doctorate:
“Integrated wound care as an alternative? The development of a multidimensional assessment tool to prove the cost-effectiveness of integrated wound care”

A recently implemented integrated wound care system in Germany will be evaluated and observed over time and compared to conventional wound care.

First step: State of the art with regard to integrated care, quality of life and clinical parameters
On that basis: Development of a multidimensional assessment tool as an instrument to evaluate different wound care methods
Method: Questioning at four points in time and Analyses of (wound) documents
Measuring instruments:
a) Direct costs of therapy
b) Pain: VAS-scale
c) Quality of life: NHP and wound-specific questionnaire

Finally: International comparative analysis (integrated versus conventional wound care)
Further development

Promotion - overview

Integrated wound care as an alternative?
- Integrated care over time illustrated by the example of wound care -

Integrated Care
State of the art

Quality of life
State of the art

Clinical parameters
State of the art

Multidimensional assessment tool
Example of modern Wound care

Empirical part:
Analysis of data from about 100 patients in integrated wound care

Method:
- Questioning at four points in time
- Analyses of (wound) documents

Measuring instrument:
- direct costs of therapy
- pain: VAG-scale
- quality of life: NHP and wound-specific questionnaire

Additional:
International comparative analysis with
- data of health insurances
- secondary data

Interpretation of results

Comparison between integrated and conventional wound care

Recommendations and future prospects
Thank you for your attention

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