IPP-aMSD
Work package 3
Documentation of indices and indicators concerning the effects of particular musculoskeletal disorders (MSD) when determining prioritization of relevant prevention topics

Dr. rer. soc. Luis Carlos Escobar Pinzón
Prof. Dr. oec. troph. Eva Münster, MPH

Dresden, 17 October 2009
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Introduction 1

Aim of work package 3

Compilation of parameters and indicators for the effect of certain musculoskeletal disorders (MSD) in order to inform priority setting for prevention measures
Introduction 2

Parameters / Indicators

- Number of **jobs affected**
- **Treatment costs**: outpatient and inpatient
- Proportion of **days lost due to work incapacity**
- **Loss of production costs / gross value**
- Number of cases and costs for **early retirement**
- Number of cases and costs for recognised **occupational diseases (OD)**
Methodology

Data sources

- Data held by the **statutory health insurance (SHI)**
  - Health reports and current statistics
  - Analysis of cross-sectional samples from 2002 of persons insured under the SHI according to the German Social Code §268
- Data held by the **statutory accident insurance**
- Data held by the **social pension fund**
- Data retrieved through the **2003 telephone-based health survey** conducted by the Robert Koch Institute
- **Scientific publications**
Results

M54 Back pain
Prevalence of back pain among the general population

Data source: telephone survey 2003; Robert Koch Institute
Period prevalence (2002) for M54 by gender (15-64 years of age)

- Period prevalence in the total sample: **24.4%** (approx. 367,900 persons diagnosed with M54, n=1,520,127)

*Distribution of M54 back pain, divided by gender*

Data source: Cross-sectional sample 2002 according to German Social Code 268; own analysis
Average number of days lost due to work incapacity per patient on sick leave due to M54 by gender

Data source: Cross-sectional sample 2002 according to German Social Code 268; own analysis

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Average number of work days lost due to incapacity per patient on sick leave due to M54 by gender and age

Data source: Cross-sectional sample 2002 according to German Social Code 268; own analysis
Sick pay (2002) for M54 by gender (15-64 years of age)

- Sick pay for M54 in total: approx. 23.1 m €

Sick pay for M54 back pain in million € divided by gender

- Men: 16.2
- Women: 6.9

Data source: Cross-sectional sample 2002 according to German Social Code 268; own analysis
Treatment costs for M54 (2002), for patients with MSD as the sole diagnosis divided by gender (15-64 years of age)

- **Costs for outpatient care** for M54 in total: approx. **4.6 m €** (129,333 cases)
  - for men: approx. **2.2 m €** (62,758 cases)
  - for women: approx. **2.4 m €** (66,575 cases)

- **Costs for inpatient care** for M54 in total: approx. **3.6 m €** (2,072 cases)
  - for men: approx. **1.9 m €** (1,059 cases)
  - for women: approx. **1.7 m €** (1,013 cases)

*Data source:* Cross-sectional sample 2002 according to German Social Code 268; own analysis
Results

Occupational diseases (OD)

A note on our methodology

- Data held by the German statutory accident insurance
- Analysis of occupational diseases as registered on 24 June 2009
- Analysis for period of 2003-2007
- Selection of certain occupational diseases
## Selected occupational diseases (OD)

<table>
<thead>
<tr>
<th>Number of specific OD</th>
<th>Description</th>
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<tbody>
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<td>2101</td>
<td>Diseases of the tendon, the tendon sheath and the paratenon…</td>
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<td>2102</td>
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</tr>
<tr>
<td>2103</td>
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<td>2107</td>
<td>Tear-off fracture of a vertebral body</td>
</tr>
<tr>
<td>2108</td>
<td>Erosion of the intervertebral disc of the lumbar spine caused by years of lifting and carrying weights…</td>
</tr>
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<td>2109</td>
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</tr>
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<td>2110</td>
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Number of cases of selected occupational diseases (2003-2007)

Commercial and public sector

- “New occupational diseases – pensions”
- “Confirmed suspected cases”

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Cases</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td></td>
<td>1,571</td>
</tr>
<tr>
<td>2108 (lumbar spine, lifting and carrying)</td>
<td>639</td>
<td>1,712</td>
</tr>
<tr>
<td>2102 (meniscus lesions)</td>
<td>518</td>
<td>1,420</td>
</tr>
<tr>
<td>2105 (bursae)</td>
<td>15</td>
<td>831</td>
</tr>
<tr>
<td>2103 (vibration, pneumatic tools)</td>
<td>337</td>
<td>504</td>
</tr>
<tr>
<td>2101 (tendon, tendon sheath, paratenon)</td>
<td>15</td>
<td>131</td>
</tr>
</tbody>
</table>

Data source: German statutory accident insurance statistics; generated on 24 June 2009

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Age of patient when registered with occupational diseases for OD 2102 (meniscus lesions) and 2108 (lumbar spine, lifting and carrying)

Data source: German statutory accident insurance statistics; generated on 24 June 2009; own analysis of data
Gender distribution for OD 2102 (meniscus lesions) and OD 2108 (lumbar spine, lifting and carrying)

<table>
<thead>
<tr>
<th>Condition</th>
<th>Women Proportion</th>
<th>Men Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>OD 2108</td>
<td>0.30</td>
<td>38.67</td>
</tr>
<tr>
<td>OD 2102</td>
<td>61.33</td>
<td>99.70</td>
</tr>
</tbody>
</table>

**Data source:** German statutory accident insurance statistics; generated on 24 June 2009; own analysis of data
Registered cases of occupational diseases and their costs

Data collected by Employers‘ Liability Insurance Association

Costs for outpatient care: 15,488,015 €
Costs for inpatient care: 18,029,484 €

Cost for outpatient care 2003-2007

- OD 2102: 8.66%
- OD 2108: 20.79%
- Other*: 70.55%

Cost for inpatient care 2003-2007

- OD 2102: 11.66%
- OD 2108: 56.12%
- Other*: 32.22%

* Other: OD 2101, OD 2103, OD 2105, OD 2107, OD 2109, OD 2110

Data source: German statutory accident insurance statistics; generated on 24 June 2009; own analysis of data
## Indirect costs caused by MSD

<table>
<thead>
<tr>
<th>Data source</th>
<th>Year</th>
<th>Base year</th>
<th>Loss of production costs (estimated on the basis of salary costs)</th>
<th>Loss of gross value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statutory health insurance* (BMAS, BAuA)</td>
<td>2008</td>
<td>2006</td>
<td>8.5 bn €</td>
<td>15.4 bn €</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>2007</td>
<td>9.5 bn €</td>
<td>17.3 bn €</td>
</tr>
</tbody>
</table>

* Data are based on 31 million persons insured through the statutory health insurance
Loss of gross value due to MSD

In billion € per 1 million days of sick leave

- Agriculture, forestry, fishery: 0.07
- Commerce, hospitality industry and transport: 0.105
- Public and private services: 0.108
- Construction industry: 0.109
- Manufacturing industry without construction industry: 0.198
- Financial services, leasing and corporate services: 0.255
- All listed economic sectors: 0.148

Data source: own analysis of statistics of SUGA 2007
Discussion

Summary of results

- High prevalence of MSD in the general population
- M54 Back pain is the most common diagnosis of all MSD among people of working age (age range of 15-64)
- Approximately every 6th pension admission in 2007 caused by MSD
- OD 2108 (lumbar spine, lifting and carrying) and 2102 (meniscus lesions) are the cause of a high number of cases and costs
- High loss of productivity and gross value due to MSD
- Differences in gender and age distribution
Critique 1: Indicators for sick leave

1. Sick notes usually have to be handed in on the third day of sickness
2. Sick leave is not documented when outpatient or inpatient care is provided as a health protection or rehabilitation measure
3. Sick notes are at the discretion of the doctor
4. Sick note indicators partly refer to the primary diagnosis and partly to the secondary diagnosis
Discussion

Critique 2: Health reports by the statutory health insurance companies

The reports do not provide a sufficient basis to inform priority setting of prevention measures

1. No standardised procedure
2. Based on different populations
3. Rare information about specific occupations
4. Due to general and compiled analysis, health risks cannot be differentiated by work sectors, occupations or certain diagnoses
Critique 3

The results from the international literature are insufficient: Standardisation is necessary

1. Different health systems and costings
2. Different definitions of costs
3. Different methods of calculating parameters
4. Methodology used is not always sufficiently explained
5. Different samples/populations and inclusion criteria
Discussion

Conclusions

- It is NOT possible to set priorities for prevention measures according to costs of specific diseases
- Decisions about prevention measures should not depend solely on cost parameters, e.g. sickness benefit (which is dependent on the patient’s salary)
- A uniform German system for data collection and calculation of parameters is urgently needed
Future prospects

Generation of valid and comprehensive data on occupational factors affecting MSD

1. Analysis of data which company physicians collect when doing check-ups

2. Cross-sectional study in major companies with the option of conducting a prospective study to test interventions

3. Implementation of a work-specific module for MSD as part of the Helmholtz-cohort
Our Team:

- Prof. Dr. oec. troph. Eva Münster, MPH
- Dr. rer. soc. Luis Carlos Escobar Pinzón
- Dr. med. Dorothea Nitsche
- Dipl.-Soz. Matthias Rau
- Dipl.-Soz. Ulrike Zier

Thank you for your interest and attention!