SUPPORTED MOBILITY QUADRANT

[SUMO-quadrant]: A tool for improving manual patient handling in a rehabilitation perspective

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INTRODUCTION
Manual patient handling is a common, though complex situation in health care settings all over the world. Manual patient handling tasks have been associated with injuries, e.g. low back pain among health care providers (HCP). The primary focus in the literature in this area is on the HCP’s working environment. The patient perspective is secondary. Physiotherapists also focus on the rehabilitation of the patient by supporting functions and promoting self-reliance. This mostly involves tacit knowledge not described in the literature. Therefore, the question seems to be: how to perform manual patient handling when the purpose is the rehabilitation of the patient, and at the same time avoid injuries to the health care providers?

AIMS
To document and describe how manual patient handling may be carried out as part of everyday practice. This description is a framework for developing new methods and technologies to improve manual patient handlings in a rehabilitation perspective.

METHODS
We systematically observed by participant observation, how manual patient handling is carried out in a nursing home, a home care setting and in three different hospital departments in Denmark during day, evening and night shifts. Field notes from the data collection comprise qualitative and quantitative data. Mixed methods were used: quantitative data are presented using descriptive statistics in SPSS; qualitative data are analysed according to the editing approach.

MATERIALS
The study is based on 136 hours of observation. In total, 56 HCPs and 73 care users were observed. A patient handling session embraces all the partial patient handlings that take place from the moment the HCP walks into the room until the HCP leaves the patient and/or the room. For example, ‘sit to stand’ is a partial patient handling, whereas ‘sit to stand’ – walking – ‘stand to sit’ is a patient handling session consisting of three partial patient handlings. The data material covers 863 partial patient handlings in 166 patient handling sessions.

Nine different types of trained HCPs were observed: health care assistants and nurses and trainees for all three groups; in addition, hospital porters, physiotherapists and physiotherapy porters. 64% of the HCPs observed were health care aids and health care assistants and their trainees.

RESULTS
SUMO-quadrant (Figure 1): a model for patient handling in a rehabilitation perspective, was developed.

SUPPORTED MOBILITY QUADRANT

PASSIVE CARING

1. Passive Care user controlled

2. Passive HCP controlled

ACTIVE REHABILITATORY

3. Active HCP controlled

4. Active Care user controlled

CARE USER CONTROLLED

HCP CONTROLLED

Figure 1: SUMO-quadrant a model for classification of manual patient handling divided into 4 subgroups.

Characteristics of the four subgroups according to the level of physical function of the care users with or without support from a health care provider (HCP):

1. The care user is physically passive in the handlings. The care user decides how and when the handling is to be executed, e.g. a care user with a cervical spinal cord injury, who needs physical help with everything.

2. The care user is to a large extent passive in the handlings, and it is the HCP who decides how and when the handling is to be executed, e.g. a care user who lives in bed due to physical/and/or cognitive deficits, but can hold his/her head and neck stable while being supported by an HCP.

3. The care user is active in the handlings together with the HCP, who decides how and when the handling is to be executed, e.g. a care user with a hip osteosynthesis without full ability to move himself/herself and who needs different kinds of support from the HCP to get out of bed.

4. The care user is physically and cognitively able to transfer himself/herself without or with a minimum of support, e.g. a care user who can inform the HCP that he/she only needs help to get up from a deep chair.

All the 863 observed partial manual patient handlings are classified as follows in the SUMO-quadrant (Figure 1): Subgroup 1: 0, subgroup 2: 31% (268), subgroup 3: 63% (544) and subgroup 4: 6% (51). By our assessment, 84% (725) of all partial handlings are carried out in the right place in the quadrant, leaving 16% (138) who should be placed in another subgroup. Furthermore, 16% (141) of all partial handlings are placed correctly in the SUMO-quadrant, but could be optimised within the subgroup. In total, we consider 68% (584) of the partial patient handlings to be ‘just right’, and of those remaining, 32% (279) can be improved.

Subgroup 2 ‘passive HCP controlled’ and subgroup 3 ‘active HCP controlled’ is the most interesting according to possible intervention, whereas 50% (134) of the partial manual patient handlings in subgroup 2 should be moved to another subgroup and 23% (124) of the partial manual patient handlings in subgroup 3 can be optimised within the subgroup (Table 1).

Tabel 1: Distribution of all 863 patient handlings divided into the subgroups of the SUMO-quadrant.

<table>
<thead>
<tr>
<th>SUMO-QUADRANT</th>
<th>NUMBER OF PARTIAL HANDLINGS</th>
<th>PARTIAL HANDLINGS ‘TO BE MOVED’</th>
<th>PARTIAL HANDLINGS ‘TO BE OPTIMISED’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subgroup 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Subgroup 2</td>
<td>268</td>
<td>134 (50%)</td>
<td>13 (5%)</td>
</tr>
<tr>
<td>Subgroup 3</td>
<td>544</td>
<td>4 (2%)</td>
<td>124 (23%)</td>
</tr>
<tr>
<td>Subgroup 4</td>
<td>51</td>
<td>4 (8%)</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>863</td>
<td>138 (16%)</td>
<td>141 (16%)</td>
</tr>
</tbody>
</table>

These partial patient handlings are characterised by:

- The HCP is working too fast.
- The HCP does not analyse the situation and does not encourage the care user to participate.
- Discrepancy between the HCP’s verbal instructions and the HCP’s support of the care user.
- Insufficient cooperation between the HCPs.

Therefore future intervention should focus on these characteristics.

CONCLUSION
SUMO-quadrant is a newly-developed model to describe and analyse how manual patient handling is done in everyday practice based on systematically obtained and processed data. Approximately two out of three partial patient handlings are assessed to be ‘just right’, and both the HCP’s working environment and the rehabilitation of the care user can be combined at the same time. The other third of the partial patient handlings can be improved in terms of the rehabilitation of the care user.