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## Development of a longlist of healthcare quality indicators for physical activity of patients during hospital stay: a modified RAND Delphi study

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Manuscripts

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3 1 **TITLE**  
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6 2 Development of a longlist of healthcare quality indicators for physical activity of patients  
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8 3 during hospital stay: a modified RAND Delphi study  
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12 4 **AUTHOR NAMES AND AFFILIATIONS**  
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51 19 **RUNNING TITLE**  
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55 20 Indicators for inpatient physical activity  
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58 21 **KEYWORDS**  
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3 22 Healthcare quality indicator, performance indicator, quality measure, physical activity  
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20 29 **BRIEF SUMMARY**  
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25 30 A longlist of 23 quality indicators was constructed to grade, monitor, and improve care for  
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28 31 hospitalized adults of all ages with (or at risk for) low physical activity during hospital stay.  
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3 32 **ABSTRACT**  
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6 33 **Objective**  
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9 34 To develop a longlist of healthcare quality indicators for the care of hospitalized adults of all  
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11 35 ages with (or at risk for) low physical activity during the hospital stay.  
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15 36 **Design**  
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18 37 A modified RAND/UCLA Appropriateness Method Delphi study.  
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21 38 **Setting and Participants**  
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24 39 Participants were physical therapists, nurses, and managers working in Dutch university  
25  
26 40 medical centers.  
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30 41 **Methods**  
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33 42 The current study consisted of three phases. Phase 1 was a systematic literature search for  
34  
35 43 quality indicators and relevant topics. Phase 2 was a survey amongst healthcare providers to  
36  
37 44 collect additional data. Phase 3 consisted of three consensus rounds. In round one, experts  
38  
39 45 rated the relevance of the potential indicators online (Delphi). The second round was a face-  
40  
41 42 to-face expert panel meeting managed by an experienced moderator. The second round was  
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43 44 a face-to-face expert panel meeting. Acceptability, feasibility, and validity of the quality  
44  
45 47 indicators were discussed by the panel members. Disagreements were solved online (Delphi)  
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47 48 in the third round.  
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53 50 **Results**  
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56 51 The search retrieved 1,556 studies of which 53 studies were assessed full-text. Data from  
57  
58 52 seventeen studies were included in a first draft longlist of indicators. Eighteen nurses and  
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3 53 one physical therapist responded to the survey and added data for a second draft of the  
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5  
6 54 longlist. Experts constructed the final longlist with 23 indicators in three consensus rounds.  
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8 55 Eight themes were identified: “Aim”, “Patient-tailored physical activity plan”, “Evaluation of  
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10 56 physical activity”, “Information on physical activity”, “Equipment to stimulate physical  
11  
12 57 activity”, “Policy regarding physical activity”, “Attitude related to physical activity”, and  
13  
14  
15 58 “Other”.

## 17 18 59 **Conclusion and Implications**

20  
21 60 The healthcare quality indicators developed in this study could help to grade, monitor, and  
22  
23 61 improve healthcare for hospitalized adults of all ages with (or at risk for) low physical activity  
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25 62 during the hospital stay. Future research will focus on the psychometric quality of the  
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27 63 indicators and selection of key performance indicators.  
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## 31 32 64 **Strengths and limitations of this study**

- 33  
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35 65 - The current study consists of a systematic review with duplicate study selection, an  
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37 66 extra survey in healthcare providers, and three consensus rounds with a panel  
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39 67 meeting  
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42 68 - The panel meeting has been moderated by an internationally experienced moderator  
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45 69 - The longlist of healthcare quality indicators was developed without the involvement  
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47 70 of patients, healthcare insurers, and external review  
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## 71 INTRODUCTION

72 Quality of healthcare can be graded as *“the degree to which health services for individuals*  
73 *and populations increase the likelihood of desired health outcomes and healthcare consistent*  
74 *with current knowledge”*.<sup>1</sup> Healthcare quality indicators are used all over the world to  
75 quantify, grade, monitor, and improve the quality of healthcare.<sup>2-4</sup> Quality indicators, also  
76 known as performance indicators or quality measures, are often outlined as a trinity of  
77 quality: structure, process, and outcome indicators.<sup>5 6</sup> Structure refers to relatively stable  
78 characteristics, tools, and resources of the providers of healthcare related to the physical  
79 and organizational settings in which they work.<sup>7</sup> The process focuses on the interpersonal  
80 aspects of treatment components and technical skill in the delivery of services.<sup>7</sup> Outcome  
81 concentrates on the change in the patient’s health status that can be attributed to preceding  
82 healthcare.<sup>7</sup> Recently, qualitative indicators have been introduced to express matters that  
83 are hard to capture quantitatively such as having confidence in being safe in a community.<sup>8</sup>  
84 Quality indicators are used in hospital care to provide information for quality improvement  
85 initiatives to, for example, decrease hospital mortality and complications.<sup>9 10</sup>  
86 For decades, studies report low physical activity during the hospital stay in elderly<sup>11-13</sup> and  
87 remarkably even in patients who are able to walk independently<sup>14</sup>. More recently, studies  
88 suggest that the “physical inactivity epidemic” affects all hospitalized adults of all ages.<sup>15</sup> In  
89 adults and elderly, physical inactivity is related to an increased risk of iatrogenic disability<sup>16 17</sup>  
90 and adverse outcomes such as prolonged hospital stay and institutionalization are common  
91 and unnecessary<sup>18 19</sup>. Several quality improvement initiatives have been developed in  
92 hospital care to improve physical activity of patients during the hospital stay.<sup>20-24</sup> Quality  
93 improvement studies aiming to improve physical activity in hospitalized adults of all ages

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3 94 have been described, but quality indicators to measure the results of such quality  
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5 95 improvement strategies are scarce and mainly focus on physical activity of elderly.<sup>25-27</sup>  
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8 96 Improving the quality of healthcare related to physical activity might require different age-  
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10 97 related strategies, as barriers to physical activity are multi-factorial and include age-related  
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12 98 expectations<sup>28</sup> and age-sensitive communication<sup>29</sup>.

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16 99 Quality indicators could be helpful to capture persisting barriers in an attempt to improve  
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18 100 the physical activity of all patients.<sup>30</sup> As a first step, a longlist of relevant quality indicators is  
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20 101 needed to serve as a database for healthcare providers, clinical teams and organizations to  
21  
22 102 measure performance for quality improvement and accountability purposes.<sup>27</sup> Therefore,  
23  
24 103 the aim of this study is to develop a longlist of quantitative and qualitative quality indicators  
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26 104 for the healthcare in hospitalized adults of all ages with (or at risk for) low physical activity  
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28 105 during the hospital stay.

## 106 **METHODS**

### 107 **Design and setting**

108 A modified RAND/UCLA Appropriateness Method Delphi study<sup>31</sup> was used to develop a  
109 longlist of quality indicators which meets the requirements of the Appraisal of Guidelines for  
110 Research and Evaluation (AGREE) II Healthcare Quality Indicator tool.<sup>32</sup> The AGREE II tool was  
111 used as a guiding checklist for study development (Supplementary Table A1). The reporting  
112 of this study followed guidelines of the Standards for Quality Improvement Reporting  
113 Excellence (SQUIRE 2.0).<sup>33</sup> The study was conducted in **masked** in accordance with the  
114 principles of the Declaration of Helsinki<sup>34</sup> and Good Clinical Practice Guideline<sup>35</sup>. Full ethical  
115 consideration was waived by the Ethics Committee of the **masked** in accordance with the



1  
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3 116 Dutch Medical Research with Human Subjects Law. There were no patients involved in this  
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6 117 study.

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9 118 All phases from the RAND/UCLA method were followed (Figure 1). Phase 1 was a systematic  
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11 119 literature search to identify indicators and relevant topics for potential indicators. Phase 2  
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13 120 was an extra survey amongst healthcare providers to provide additional relevant topics. This  
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16 121 extra survey was a modification to the original RAND/UCLA method to obtain as many  
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18 122 relevant indicators and topics as possible. Phase 3 consisted of three consensus rounds in  
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20  
21 123 which potential indicators were rated for their relevance by experts.

#### 22 23 24 124 **Literature search**

25  
26  
27 125 The literature search was conducted to develop the first draft of longlist of quality indicators  
28  
29 126 for physical activity of hospitalized adults of all ages. CINAHL, MEDLINE, and EMBASE were  
30  
31 127 systematically searched for studies up to 24 January 2018 using a pre-defined search  
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33 128 strategy (Supplementary Table A2). The search strategy was compiled with the help of an  
34  
35  
36 129 experienced librarian (masked). All studies were independently screened by two researchers  
37  
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39 130 (masked) and data were extracted in duplicate.<sup>36</sup> An indicator was considered relevant if a  
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41 131 definition, numerator, and denominator were described in the literature and related to  
42  
43 132 physical activity of patients during the hospital stay. A topic was considered relevant when  
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46 133 information in the text of articles commented on the physical activity of patients during the  
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49 134 hospital stay.

#### 50 51 52 135 **Extra survey**

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55 136 All indicators and topics were then translated into the Dutch language and presented to a  
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57 137 convenience sample of healthcare providers and managers of one Dutch academic hospital  
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60 138 using an online questionnaire in LimeSurvey.<sup>37</sup> The participants were requested to suggest

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3 139 additional topics related to physical activity of hospitalized adults of all ages. Furthermore,  
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5 140 problems as a result of unclear translation or unclear formulation were solved with the help  
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8 141 of the participants. The second draft was constructed by two researchers (masked) with  
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10 142 quality indicators from both the literature review and additional input from healthcare  
11  
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13 143 providers and managers. Each topic was converted into an indicator by formulating a  
14  
15 144 definition, numerator, and denominator. All converted topics were checked for loss of  
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18 145 information due to the translation by a third researcher (masked).

### 21 146 **Consensus rounds**

22  
23  
24 147 The second draft of the longlist with quality indicators was presented for relevance rating in  
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26 148 the three consensus rounds with experts<sup>38</sup> For inclusion in the consensus rounds with  
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29 149 experts, a purposive sample was recruited with national expert physical therapists, nurses,  
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32 150 and managers in hospitals who had expert knowledge about physical activity of patients  
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34 151 during hospital stay.<sup>39</sup> Inclusion criteria for experts were: working as a physical therapist,  
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36 152 nurse or manager in a university medical center; and member of an acknowledged national  
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39 153 workgroup related to physical activity of patients during the hospital stay. The researchers  
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41 154 (masked) identified 28 experts who were approached by email and telephone for  
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44 155 participation within the current study.

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47 156 In the first consensus round (Delphi method), the experts received the longlist of quality  
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49 157 indicators online in LimeSurvey. All indicators were rated on relevance by the experts for the  
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51 158 first consensus label: *selection, discussion or no selection*. In the second round, all quality  
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54 159 indicators were discussed in a panel meeting with experts (panel members) moderated by  
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56 160 an experienced moderator (masked). First, the panel members discussed the acceptability to  
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59 161 healthcare providers and managers, the feasibility of use, and the validity in terms of  
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162 providing more appropriate care and optimizing patient outcomes.<sup>31</sup> Finally, all panel  
 163 members voted (yes or no) for final consensus on *selection, discussion, or no selection* of the  
 164 quality indicators. A methodologist (masked) observed the panel meeting from the side-line  
 165 and intervened if methodological errors occurred. In the third consensus round (Delphi  
 166 method), all panel members received only the modified quality indicators and quality  
 167 indicators which were still under discussion online in LimeSurvey for final consensus.

### 168 Data analysis

169 The experts were instructed to rate the quality indicators on relevance only, not on e.g.  
 170 feasibility or reliability. The relevance was scored using a 9-point Likert scale ranging from 1  
 171 *not relevant* to 9 *very relevant*. Consensus outcomes were calculated from the relevance  
 172 ratings using the masked.<sup>40</sup> The consensus outcomes were based on the median score and  
 173 the highest tertile, which resulted in labels: *selection, discussion, or no selection* (Table 1).  
 174 Quality indicators were labeled *selection* when the median score was  $\geq 8$  on the 9-point  
 175 Likert scale and  $\geq 70\%$  of the responses were in the highest tertile. *Discussion* was the label  
 176 as a result of three possible outcomes, 1) the median score was  $\geq 8$  though less than 70% of  
 177 the responses were in the highest tertile, 2) the median score was  $< 8$  though more than 70%  
 178 of the responses were in the highest tertile, or 3) 30% of the responses were in the lowest  
 179 and highest tertile. An indicator was labeled *no selection* when the median was  $\leq 7$  and less  
 180 than 70% of the responses were in the highest tertile.

181 *Table 1. Labels corresponding to the consensus outcomes following different quantitative*  
 182 *relevance ratings of experts in the consensus rounds using the IQ healthcare consensus tool.*

$\geq 70\%$ in the highest tertile	$\geq 30\%$ in the lowest tertile, and $\geq 30\%$ in the highest tertile	$< 70\%$ in the highest tertile
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<b>Median <math>\leq 3</math></b>	Discussion	Discussion	No selection
<b>Median <math>4 \leq 7</math></b>	Discussion	Discussion	No selection
<b>Median <math>\geq 8</math></b>	Selection	Discussion	Discussion

183

184 In the second consensus round (panel meeting), the panel members received information on  
 185 all first-round outcomes with corresponding labels per quality indicator. The panel members  
 186 voted yes or no for final *selection*, *discussion*, or *no selection* with consensus if at least 75%  
 187 of the members voted for one final outcome. The quality indicators were – if needed –  
 188 modified to improve the concise formulation. If modification(s) were suggested, the quality  
 189 indicators were reformulated and rated (online and anonymous) for a second time by the  
 190 panel members. The quality indicators which remained under discussion were – if needed –  
 191 modified and rated by the panel members in the third online consensus round. After the  
 192 third consensus round, only quality indicators which were labeled *selection* were included in  
 193 the longlist of quality indicators. Ultimately, all selected quality indicators were charted by  
 194 theme and translated into the English language with a standardized forward-backward by  
 195 the Language Centre of the MASKED.

## 196 RESULTS

### 197 Literature search

198 The systematic literature search retrieved a total of 1,556 studies, including 8 studies  
 199 through searching the grey literature (Supplementary Table A2, Supplementary Figure A1).  
 200 Fifty-three studies were assessed on full-text for eligibility, ultimately resulting in the  
 201 inclusion of 17 articles.<sup>11 14-17 19 25-27 41-48</sup> Data extraction resulted in the identification of 29

202 unique indicators and 5 topics related to hospitalized adults of all ages with (or at risk for)  
203 low physical activity during hospital stay for a first draft longlist of quality indicators.

#### 204 **Extra survey**

205 The 29 indicators and 5 topics were translated into the Dutch language and surveyed  
206 amongst 296 healthcare providers. Eighteen nurses and 1 physical therapist responded and  
207 they suggested 20 additional topics. Twenty-five topics were reformulated and converted  
208 into indicators, ultimately resulting in 54 unique indicators in the second draft longlist of  
209 quality indicators (Supplementary Table A3).

#### 210 **Consensus rounds**

211 Consensus round 1 – Twenty-eight experts were invited to participate in the first online  
212 Delphi round. Ultimately, 14 experts responded: 8 physical therapists, 4 nurses and 2  
213 managers. A total of 22 indicators were labeled *selection*, 12 indicators *discussion*, and 20  
214 indicators *no selection* as a result of the first round. A detailed overview of ratings and  
215 selections is provided in Supplementary Table A4.

216 Consensus round 2 – The panel meeting lasted three hours with a total of 5 panel members:  
217 4 physical therapists and 1 nurse. At the start, the moderator asked to discuss two key issues  
218 which were identified in the first Delphi round. Firstly, the concept of physical activity during  
219 hospital stay was discussed and operationalized for the panel meeting as “*an active transfer*  
220 *of a body(part) by a hospitalized patient*”. This did not include exercises or a transfer of a  
221 body(part) using a machine or object such as a standing aid or hospital bed. Secondly, the  
222 physical activity plan was operationalized as “*an object in which physical activity should be*  
223 *reported, tailored at individual patients’ needs, with a specific structure stating personal*  
224 *goals, frequency, intensity, time, and type of physical activity. In addition, the amount of*

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3 225 *support needed for mobilization should be described, for example, the need for a walking*  
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6 226 *aid*". Of all 22 indicators with the label *selection*, the panel members voted consensus for  
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8 227 *selection* of 15 indicators, *discussion* of 5 indicators, and *no selection* of 2 indicators. Of all 12  
9  
10 228 indicators with the label *discussion*, the panel members voted consensus for *selection* of 5  
11  
12 229 indicators, *discussion* of 1 indicator, and *no selection* of 6 indicators. Of all 20 indicators with  
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14 230 the label *no selection*, the panel members voted consensus for *discussion* of 1 indicator and  
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16 231 *no selection* of 19 indicators. As a result of the second consensus round, 20 indicators were  
17  
18 232 *selected*, 7 indicators remained under *discussion* and were included in round 3, and 27  
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20 233 indicators were *not selected* (Supplementary Table A4).

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25 234 Consensus round 3 (Delphi) – In the third round, the final rating of the 7 remaining indicators  
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27 235 resulted in the *selection* of 3 indicators, *discussion* of 3 indicators, and *no selection* of 1  
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29 236 indicator. The discussion remained on three indicators (numbers 30, 32, 47) resulting in *no*  
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31 237 *selection* due to a lack of consensus (Supplementary Table A4). A flow diagram of the quality  
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33 238 indicators selection is presented in Figure 1.

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38 239 Please insert Figure 1 'Flow diagram showing the selection of healthcare quality indicators in  
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41 240 all phases of the study' about here.

#### 42 43 44 241 **Final longlist indicators**

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47 242 The final longlist of quality indicators includes 23 indicators which were categorized in eight  
48  
49 243 themes (Table 2). The first theme, "*Aim*", consists of one indicator that describes the  
50  
51 244 intention of achieving physical activity of patients within 48 hours after hospital admission.  
52  
53 245 The second theme, "*Patient-tailored physical activity plan*", describes quality indicators  
54  
55 246 related to the use and follow-up of a patient-tailored physical activity plan that "*should be*  
56  
57 247 *reported, tailored at individual patients' needs, with a specific structure stating personal*

248 *goals, frequency, intensity, time, and type of physical activity*". The third theme, "Evaluation  
 249 *of physical activity*" includes quality indicators on timely documentation and assessment of  
 250 physical activity of patients by a healthcare provider. The fourth theme, "Information on  
 251 *physical activity*", describes two quality indicators related to the provision of educational  
 252 information to both patients and close-relatives. The fifth theme includes quality indicators  
 253 on "Equipment to stimulate physical activity". Within this theme, specific attention is given  
 254 to limited use of freedom and mobility limiting equipment such as five-point fixation,  
 255 intravenous lines, and urinary catheters. The sixth theme describes two quality indicators in  
 256 the theme "Policy regarding physical activity" to evaluate institutional characteristics of the  
 257 hospital (ward) in which healthcare providers work. The seventh theme describes three  
 258 qualitative quality indicators in which the "Attitude related to physical activity" of physicians  
 259 and nurses should be assessed. At last, three quality indicators were labeled as "Other".

260 *Table 2. The final longlist healthcare quality indicators for the care of patients with (or at risk*  
 261 *for) low physical activity during the hospital stay.*

Theme	Healthcare quality indicators	
<b>1. Aim</b>	<b>Title:</b>	<b>1. Patients should be physically active within 48 hours after hospital admission (Outcome indicator)</b>
	<i>Numerator:</i>	The number of patients who were physically active within 48 hours after hospital admission.
	<i>Denominator:</i>	The number of patients. <i>Adapted from Arora et al.<sup>26</sup></i>
<b>2. Patient-tailored physical activity plan</b>	<b>Title:</b>	<b>2. Patients should have a physical activity plan (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who had a physical activity plan within 48 hours after hospital admission.
	<i>Denominator:</i>	The number of patients. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al<sup>17</sup></i>
	<b>Title:</b>	<b>3. Patients in need for support during mobilization should have a physical activity plan (Process indicator)</b>

*Numerator:* The number of patients, who needed the support of (at least) one person for mobilization, with a physical activity plan.  
*Denominator:* The number of patients who needed the support of at (least) one person for mobilization.

*Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>17</sup>*

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**Title:** **4. Patients without need for support during mobilization should have a physical activity plan (Process indicator)**

*Numerator:* The number of patients, who did not need the support of a person for mobilization, with a physical activity plan. Patients who only use (a) walking aid(s) are considered independent.

*Denominator:* The number of patients who did not need the support of a person for mobilization.

*Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>17</sup>*

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**Title:** **5. Patients should perform physical activities as described in their physical activity plan (Outcome indicator)**

*Numerator:* The number of patients who performed physical activities as described in their physical activity plan.

*Denominator:* The number of patients with a physical activity plan.

*Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>17</sup>*

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**3. Evaluation of physical activity**

**Title:** **6. Nurses or physical therapists should evaluate the preadmission physical ability (Process indicator)**

*Numerator:* The number of patients in which the preadmission physical functioning was evaluated within 24 hours after hospital admission.

*Denominator:* The number of patients.

*Adapted from Brown et al.<sup>11</sup>, Pedersen et al.<sup>14</sup>, Lafont et al.<sup>17</sup>, Zisberg et al.<sup>19</sup>, Covinsky et al.<sup>41</sup>, Bail et al.<sup>25</sup>, Arora et al.<sup>42</sup>, Tropea et al.<sup>27</sup>, and Counsell et al.<sup>47</sup>*

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**Title:** **7. Nurses or physical therapists should evaluate the mobility (Process indicator)**

*Numerator:* The number of patients in which the mobility was evaluated within 24 hours after hospital admission.

*Denominator:* The number of patients.

*Adapted from Covinsky et al.<sup>41</sup>*

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**Title:** **8. Patients should be evaluated after a fall incident (Process indicator)**

*Numerator:* The number of patients in which a fall incident was evaluated within 24 hours after the fall.

*Denominator:* The number of patients with a fall incident.

*Adapted from Arora et al.<sup>26</sup> and Tropea et al.<sup>27</sup>*

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**4. Information on physical activity**

**Title:** **9. Patients should be informed about the importance of physical activity (Process indicator)**

*Numerator:* The number of patients who were informed about the



		importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients <i>Adapted from Bail et al.<sup>25</sup></i>
	<i>Title:</i>	<b>10. Close-relatives of patients should be informed about the importance of physical activity (Process indicator)</b>
	<i>Numerator:</i>	The number of close-relatives of patients who were informed about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients with close-relatives. <i>Adapted from Bail et al.<sup>25</sup></i>
<b>5. Equipment to stimulate physical activity</b>	<i>Title:</i>	<b>11. Patients should have adequate walking aids (Structure indicator)</b>
	<i>Numerator:</i>	The number of patients who were advised to use (a) walking aid(s), with (an) adequate walking aid(s) available.
	<i>Denominator:</i>	The number of patients who were advised to use (a) walking aid(s). <i>Expert opinion</i>
	<i>Title:</i>	<b>12. Nurses should evaluate freedom limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of freedom-limiting equipment. Examples are five-point fixation, wheelchair tables, and wheelchair brakes.
	<i>Answer:</i>	Yes or no. <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>16</sup></i>
	<i>Title:</i>	<b>13. Nurses should evaluate mobility limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of mobility-limiting equipment in patients. Examples are intravenous lines, urinary catheters, and oxygen tubes.
	<i>Answer:</i>	Yes or no. <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>16</sup></i>
	<i>Title:</i>	<b>14. The hospital (ward) should provide adequate resources to stimulate physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) provided physical activity stimulating resources. Examples are: walking routes, treadmills, ergometers.
	<i>Answer:</i>	Yes or no. <i>Adapted from Bail et al.<sup>25</sup> and Covinsky et al.<sup>41</sup></i>
	<i>Title:</i>	<b>15. The hospital (ward) should have orientation promoting resources (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) provided orientation stimulating resources. Examples are: maps, direction signs, banners with route information

	<i>Answer:</i>	Yes or no. <i>Adapted from Bail et al.<sup>25</sup> and Covinsky et al.<sup>41</sup></i>
<b>6. Policy regarding physical activity</b>	<b>Title:</b>	<b>16. The hospital (ward) should have the policy to improve the physical activity of patients (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) policy was to inform patients to be physically active during the hospital stay.
	<i>Answer:</i>	Yes or no. <i>Expert opinion</i>
	<b>Title:</b>	<b>17. The hospital (ward) should have the policy to inform close-relatives about physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) policy was to inform close-relatives of patients about the importance of physical activity during the hospital stay.
	<i>Answer:</i>	Yes or no. <i>Expert opinion</i>
<b>7. Attitude related to physical activity</b>	<b>Title:</b>	<b>18. Physicians should stimulate the physical activity of patients (Qualitative indicator)</b>
	<i>Numerator:</i>	The number of physicians who had a stimulating attitude towards the physical activity of patients during the hospital stay
	<i>Denominator:</i>	The number of physicians. <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>16</sup></i>
	<b>Title:</b>	<b>19. Nurses should stimulate the physical activity of patients (Qualitative indicator)</b>
	<i>Numerator:</i>	The number of nurses who had a stimulating attitude towards the physical activity of patients during the hospital stay.
	<i>Denominator:</i>	The number of nurses <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>16</sup></i>
	<b>Title:</b>	<b>20. Nurses should stimulate independent functioning in daily activities of patients (Qualitative indicator)</b>
	<i>Numerator:</i>	The number of nurses who had a stimulating attitude towards independent physical functioning in daily activities of patients during the hospital stay.
	<i>Denominator:</i>	The number of nurses. <i>Adapted from Sourd et al.<sup>16</sup>, Pedersen et al.<sup>14</sup>, and Brown et al.<sup>11</sup></i>
<b>8. Other</b>	<b>Title:</b>	<b>21. Patients should receive support for mobilization (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who received the support of (at least) one person for mobilization.
	<i>Denominator:</i>	The number of patients who needed the support of (at least) one person for mobilization. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>17</sup></i>

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<b>Title:</b>	<b>22. Patients should have an acceptable degree of pain (Outcome indicator)</b>
<b>Numerator:</b>	The number of patients who scored <i>pain at rest</i> and <i>pain during physical activities</i> with a Numeric Pain Rating Scale $\leq 4$ .
<b>Denominator:</b>	The number of patients. <i>Adapted from Sourd et al.<sup>16</sup>, Covinsky et al.<sup>41</sup>, and Arora et al.<sup>42</sup></i>

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<b>Title:</b>	<b>23. Nurses should have followed education related to physical activity of patients (Structure indicator)</b>
<b>Numerator:</b>	The number of nurses who followed education concerning the importance of physical activity of patients during the hospital stay.
<b>Denominator:</b>	The number of patients. <i>Adapted from Bail et al.<sup>25</sup></i>

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263 **DISCUSSION**

264 The current study presents the development of a longlist with quantitative and qualitative  
 265 healthcare quality indicators for the healthcare of hospitalized adults of all ages with (or at  
 266 risk for) low physical activity during the hospital stay. A multidisciplinary expert panel agreed  
 267 on a list of 23 quality indicators with important themes such as an aim, patient-tailored  
 268 physical activity plan, evaluation of physical activity, information on physical activity,  
 269 equipment to stimulate physical activity, policy regarding physical activity, and attitude  
 270 related to physical activity. The quality indicators involve several stakeholders such as  
 271 patients, close-relatives, and healthcare providers (i.e. physical therapists, nurses, and  
 272 physicians), which is consistent with the multi-factorial nature of the low physical activity of  
 273 patients during the hospital stay.<sup>41</sup>

274 In the view of current literature related to indicator development in secondary healthcare,  
 275 several studies reported on physical activity of the elderly.<sup>25-27</sup> In contrast to our study, none  
 276 of these aimed to evaluate physical activity in hospitalized adults of all ages during the  
 277 hospital stay. Bail et al.<sup>25</sup> performed a literature review and constructed a theoretical

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3 278 framework called 'Failure to maintain'. This study suggested quality indicators on physical  
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5 279 environment factors and process factors (treatment and regimes that may affect the patient)  
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8 280 to increase physical activity in complex older patients and ultimately decrease the incidence  
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10 281 of urinary tract infections, pneumonia, delirium, and pressure injuries. Arora et al.<sup>26</sup> also  
11  
12 282 performed a literature review for the general medical care of hospitalized vulnerable elderly.  
13  
14 283 Out of thirty reported quality indicators, only two related to physical activity of patients  
15  
16 284 during hospital stay: mobilization and inpatient fall evaluation. These two themes are likely  
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18 285 to be important, although only two quality indicators do not completely address the  
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20 286 complex issue of low physical activity in patients during the hospital stay.<sup>49</sup> Tropea et al.<sup>27</sup>  
21  
22 287 performed a Delphi study with anonymous voting rounds and a panel meeting similar to the  
23  
24 288 current study, ultimately resulting in a set of quality indicators for healthcare in older  
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26 289 hospitalized patients. Three quality indicator themes related to physical activity in patients  
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28 290 during hospital stay with five relevant quality indicators: inpatient fall evaluation, fall-related  
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30 291 injuries including fractures, pressure ulcer risk assessment, discharge assessment, and  
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32 292 assessment of physical function.  
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40 293 Interestingly, the current study found two quality indicators with a focus on hospital (ward)  
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42 294 policy. Quality improvement studies which aim to improve physical activity in hospitalized  
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44 295 adults of all ages should include the perspective of local hospital policy in their study  
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47 296 development and process evaluation in line with the Medical Research Council  
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49 297 recommendations.<sup>50</sup> Furthermore, qualitative quality indicators were described to evaluate  
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51 298 the attitudes of healthcare providers related to physical activity. Attitudes are often hard to  
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53 299 measure and therefore ignored in other studies,<sup>8</sup> despite the knowledge that attitudes of  
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55 300 different stakeholders play an important role in healthcare quality improvement.<sup>51</sup> With low  
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57 301 physical activity during hospital stay being a multi-factorial issue in hospitalized adults of all  
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3 302 ages, the current study provides crucial knowledge to evaluate healthcare for hospitalized  
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5 303 adults of all ages (with or) at risk for low physical activity during the hospital stay.  
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### 9 304 **Strengths and limitations**

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11 305 The current study has several strengths. First, all methods as suggested by the modified  
12  
13 306 RAND/UCLA are followed in detail. The use of a rigorous systematic review with duplicate  
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15 307 study selection, an extra survey in healthcare providers, and consensus rounds with a panel  
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17 308 meeting is considered as a very rigor quality indicators development procedure.<sup>52</sup> Second,  
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19 309 the panel meeting has been moderated by an internationally experienced moderator  
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21 310 (masked) which contributed to an efficient and systematic discussion of all quality indicators.  
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27 311 There are also a number of limitations to the current study that need to be discussed. First,  
28  
29 312 only five panel members participated in the panel meeting which is lower than the preferred  
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31 313 seven to fifteen members within the RAND/UCLA method.<sup>31</sup> Despite the reduced diversity of  
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33 314 representation, the smaller group size was found to stimulate the involvement of every  
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35 315 panel member in the group discussion. Second, two items of the AGREE II are not met.<sup>32</sup> The  
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37 316 quality indicators are not submitted to external review, and stakeholders such as patients,  
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39 317 managers, and healthcare insurers are insufficiently included in the process of quality  
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41 318 indicators development. However, the limited external review and stakeholder involvement  
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43 319 could be adequately addressed in future research.  
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### 50 320 **Recommendations for future research**

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53 321 The longlist of quality indicators needs to be applied in practice to further assess the  
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55 322 acceptability to healthcare providers and managers, the feasibility of use, and the validity. A  
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57 323 validation study following the Delphi technique of Hasson et al.<sup>52</sup> in a team of national and  
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59 324 international experts would provide crucial information on the appropriateness of care and  
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3 325 optimization of patient outcomes. To improve feasibility in daily practice, it would be useful  
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5 326 to select approximately three or four key performance quality indicators from the current  
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8 327 longlist. Ultimately, a quality improvement study should use the key performance quality  
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10 328 indicators in daily healthcare and assess their effect on patient outcomes such as physical  
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13 329 activity and iatrogenic disability.

### 16 330 **Conclusions and Implications**

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19 331 The healthcare quality indicators developed within the current study form a rigorous basis to  
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21 332 evaluate healthcare for hospitalized adults of all ages with (or at risk for) low physical activity  
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23 333 during the hospital stay. Improvement in the healthcare related to low physical activity of  
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25 334 patients during the hospital stay is urgently needed, as the epidemic of low physical activity  
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27 335 already lasts for decades with known, well-reported adverse outcomes such as iatrogenic  
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29 336 disability. Quality improvement projects to increase the physical activity of patients during  
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31 337 the hospital stay using currently developed healthcare quality indicators are promising,  
32  
33 338 relevant, and will improve outcomes in hospitalized adults of all ages.

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51  
52 345 collection.

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3 347 All authors declare that they have no competing interests.  
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15 351 **AUTHORS' CONTRIBUTIONS**  
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17  
18 352 NK, SH, and TH contributed to study conceptualization. Data collection and analysis was handled by  
19  
20 353 NK, SH, PW, and TH. SB provided resources and contributed to project administration. PW and TH  
21  
22 354 supervised all research activities. All authors reviewed concept drafts of the manuscript and  
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24  
25 355 approved submission of the final draft.  
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27 356 **DATA AVAILABILITY**  
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30 357 No additional data available. All data is provided in detail in the online Supplementary File.  
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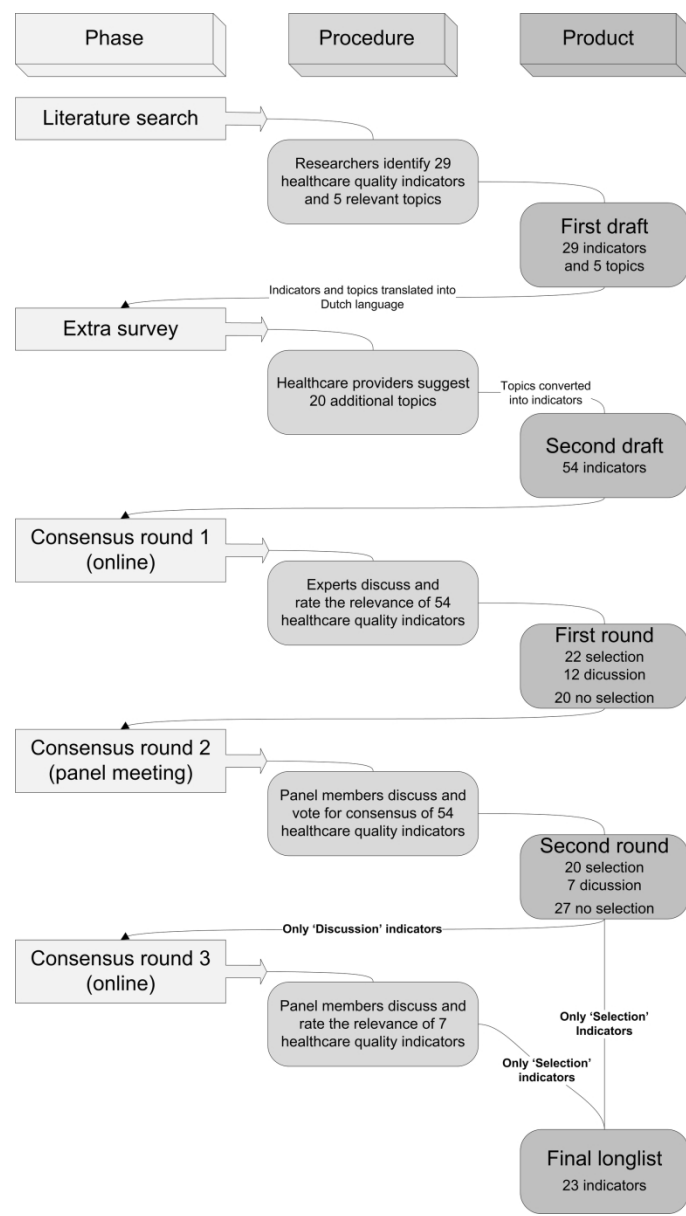


Figure 1 'Flow diagram showing the selection of healthcare quality indicators in all phases of the study

160x284mm (300 x 300 DPI)

*Supplementary Table A1. Agree II quality indicator tool: Quality items and followed procedures for the development of healthcare quality indicators for the care of patients with (or at risk for) low physical activity during hospital stay. Adapted from Peter et al.<sup>[55]</sup>*

<b>Domain 1. Scope and purpose</b>	
The overall objectives of the quality indicator development initiative are specifically described.	The purpose of this quality indicators development was to assess the quality of care for patients with (or at risk for) low physical activity during hospital stay.
The population to whom the indicators are meant to apply is specifically described.	Adult hospitalized adults of all ages during hospital stay, with specific attention for patients with (or at risk for) low physical activity.
<b>Domain 2. Stakeholder involvement</b>	
The indicator development group includes individuals from relevant professional groups in line with the overall objective.	First, an acknowledged group of experts in physical activity of patients during hospital stay was contacted. From this group with healthcare providers, researchers, innovators, and implementation experts, a multidisciplinary expert panel was formed.
The target users of the indicators are clearly defined.	The target users of the quality indicators are physical therapists and nurses working in hospital care, treating patients with low physical activity during hospital stay.
<b>Domain 3. Rigour development</b>	
Systematic methods were used to search for evidence.	Evidence was based on a systematic literature search conducted in CINAHL, MEDLINE, and EMBASE. Details are provided in Supplementary Table A2 and Supplementary Figure A1.
The criteria for selecting the indicators are clearly described.	A RAND/UCLA-modified Delphi method was used for the selection of quality indicators. The <b>masked</b> was used to calculate consensus and provide information on selection, discussion or no selection according to pre-defined cut-off values.
The methods for formulating the indicators are clearly described.	Formulation of the quality indicators was done by the researchers ( <b>masked</b> ) and checked by a third researcher ( <b>masked</b> ). The formulation was subsequently discussed by all healthcare providers and experts participating in this study before the second draft of the longlist of quality indicators. The expert panel commented on the formulation of all quality indicators before discussing indicator selection and the final draft of the longlist of quality indicators.
There was a predefined quantitative process for indicator selection.	A numeric rating scale from 1 (completely irrelevant) to 9 (extremely relevant) was used for scoring by the expert panel. Details for quantitative quality indicators

	selection are provided in Supplementary Table 2.
An explicit link between the indicators and supporting evidence is provided.	For each quality indicator, relevant studies were provided in summary and full-text. If no relevant evidence was available, it was stated that the quality indicator was based on expert opinion.
The indicators have been externally reviewed by experts/end-users prior to publication.	An external review was not conducted. A subsequent study will be conducted to test the feasibility, validity, and implementation of the quality indicators suggested in the final draft longlist of quality indicators.
A procedure for updating the indicators is provided and/or the indicator set has been updated.	The quality indicators will be updated every five years in collaboration with the national professional association for hospital physical therapy.
<b>Domain 4. Clarity of presentation</b>	
The indicators are specific and unambiguous.	For each quality indicator, a numerator and denominator were formulated to quantify the indicator, so that they are suitable for assessing the quality of care.
<b>Domain 5. Applicability</b>	
The indicators are supported with tools for use	Tools suggested for usage were electronic medical records, direct observations using behavioral mapping, and interviews.
The potential organizational barriers to applying the indicators have been discussed.	Potential organizational barriers were suggested such as the need to include more stakeholders (i.e. patients, health insurers), and the degree in which all quality indicators could be measured validly. Those barriers will be handled within the subsequent feasibility, validity, and implementation study.
The indicator development initiative is editorially independent from the funding body.	This research was conducted without any funding.
Comparing interests of indicator development group members have been recorded and addressed.	All authors declared that there were no conflicts of interest.
<b>Domain 6. 'Rate the overall quality of this initiative'</b>	Not applicable to quality indicators development.

*AGREE, Appraisal of Guidelines for Research and Evaluation; RAND/UCLA, Research and Development/University of California, Los Angeles*

Supplementary Table A2. Literature search details.

PubMed:

**Domain:**

(Inpatients[MeSH] OR Hospitalization[MeSH] OR "Adolescent, Hospitalized"[MeSH] OR "Child, Hospitalized"[MeSH] OR inpatient\*[tiab] OR hospitalized[tiab] OR hospitalization\*[tiab] OR hospitalised OR hospitalisation\*[tiab] OR hospital[tiab])

**Determinant:**

Early Ambulation[MeSH] OR Exercise[MeSH] OR Iatrogenic Disease[MeSH] OR Locomotion[MeSH] OR Motor Activity[MeSH] OR Muscle Fatigue[MeSH] OR Muscle Strength[MeSH] OR Physical Endurance[MeSH] OR Physical Exertion[MeSH] OR Physical Fitness[MeSH] OR Physical Therapy Modalities[MeSH] OR Posture[MeSH] OR Sedentary lifestyle[MeSH] OR Self Care[MeSH] OR "Mobility Limitation"[MeSH] OR Ambulation[tiab] OR Exercis\*[tiab] OR Fitness[tiab] OR Hospital Acquired Condition\*[tiab] OR Iatrogenic disabilit\*[tiab] OR Iatrogenic Disease\*[tiab] OR Iatrogenic disorder\*[tiab] OR Immobil\*[tiab] OR Locomot\*[tiab] OR mobil\*[tiab] OR motor activity[tiab] OR Muscle Fatigue[tiab] OR Muscle Strength[tiab] OR Muscular Fatigue[tiab] OR Physical activ\*[tiab] OR Physical Effort\*[tiab] OR Physical Endurance\*[tiab] OR Physical Exertion\*[tiab] OR Physical inactivity[tiab] OR Physical therap\*[tiab] OR Physiotherap\*[tiab] OR Posture\*[tiab] OR Seated Position\*[tiab] OR Sedentary behavior[tiab] OR Sedentary behaviour[tiab] OR Sedentary lifestyle[tiab] OR Self Care[tiab] OR Self Management[tiab] OR Sitting Position\*[tiab] OR Standing Position\*[tiab] OR stepping[tiab] OR hospital associated disorder\*[tiab]

**Outcome:**

"Quality indicators, Health Care"[MeSH] OR Healthcare Quality indicator\*[tiab] OR Health care Quality indicator\*[tiab] OR Healthcare Global Trigger Tool\*[tiab] OR Health care Global Trigger Tool\*[tiab] OR structure indicator\*[tiab] OR process indicator\*[tiab] OR performance

indicator\*[tiab] OR Health indicator\*[tiab] OR health status indicator\*[tiab] OR qualitative indicator\*[tiab] OR quantitative indicator\*[tiab]

EMBASE:

**Domain**

'hospital patient'/exp OR 'hospitalization'/exp OR (inpatient\* OR hospitalized OR hospitalization\* OR hospitalised OR hospitalisation\* OR hospital):ti,ab,kw

**Determinant**

'mobilization'/exp OR 'exercise'/exp OR 'endurance'/exp OR 'physical activity'/exp OR 'physical capacity'/exp OR 'physical inactivity'/exp OR 'iatrogenic disease'/exp OR 'patient mobility'/exp OR 'physical mobility'/exp OR 'locomotion'/exp OR 'muscle strength'/exp OR 'muscle fatigue'/exp OR 'fitness'/exp OR 'sedentary behavior'/exp OR 'sedentary lifestyle'/exp OR 'cardiorespiratory fitness'/exp OR 'physiotherapy'/exp OR 'body position'/exp OR 'self care'/exp OR 'walking difficulty'/exp OR 'stepping'/exp OR 'immobility'/exp OR Ambulation:ti,ab,kw OR Exercis\*:ti,ab,kw OR Fitness:ti,ab,kw OR ('Hospital Acquired' NEXT/1 Condition\*):ti,ab,kw OR (Iatrogenic NEXT/1 disabilit\*):ti,ab,kw OR (Iatrogenic NEXT/1 Disease\*):ti,ab,kw OR (Iatrogenic NEXT/1 disorder\*):ti,ab,kw OR Immobil\*:ti,ab,kw OR Locomot\*:ti,ab,kw OR mobil\*:ti,ab,kw OR 'motor activity':ti,ab,kw OR 'Muscle Fatigue':ti,ab,kw OR 'Muscle Strength':ti,ab,kw OR 'Muscular Fatigue':ti,ab,kw OR (Physical NEXT/1 activ\*):ti,ab,kw OR (Physical NEXT/1 Effort\*):ti,ab,kw OR (Physical NEXT/1 Endurance\*):ti,ab,kw OR (Physical NEXT/1 Exertion\*):ti,ab,kw OR 'Physical inactivity':ti,ab,kw OR (Physical NEXT/1 therap\*):ti,ab,kw OR Physiotherap\*:ti,ab,kw OR Posture\*:ti,ab,kw OR (Seated NEXT/1 Position\*):ti,ab,kw OR 'Sedentary behavior':ti,ab,kw OR 'Sedentary behaviour':ti,ab,kw OR 'Sedentary lifestyle':ti,ab,kw OR 'Self Care':ti,ab,kw OR 'Self Management':ti,ab,kw OR (Sitting NEXT/1 Position\*):ti,ab,kw OR (Standing NEXT/1 Position\*):ti,ab,kw OR stepping:ti,ab,kw OR 'hospital associated disorder':ti,ab,kw

**Outcome**

'health status indicator'/exp OR 'clinical indicator'/exp OR 'performance measurement system'/exp  
 OR 'public health systems research'/exp OR ('Healthcare Quality' NEXT/1 Indicator\*):ti,ab,kw OR  
 ('Health care Quality' NEXT/1 Indicator\*):ti,ab,kw OR ('Healthcare Global Trigger' NEXT/1  
 Tool\*):ti,ab,kw OR ('Health care Global Trigger' NEXT/1 Tool\*):ti,ab,kw OR (structure NEXT/1  
 indicator\*):ti,ab,kw OR (process NEXT/1 indicator\*):ti,ab,kw OR (performance NEXT/1  
 indicator\*):ti,ab,kw OR (Health NEXT/1 indicator\*):ti,ab,kw OR ('health status' NEXT/1  
 indicator\*):ti,ab,kw OR (qualitative NEXT/1 indicator\*):ti,ab,kw OR (quantitative NEXT/1  
 indicator\*):ti,ab,kw'

CINAHL

**Domain**

(MH "Inpatients+") OR (MH "Hospitalization+" ) OR TI inpatient\* OR AB inpatient\* OR TI  
 hospitalized OR AB hospitalized OR TI hospitalization\* OR AB hospitalization\* OR TI hospitalised  
 OR AB hospitalised OR TI hospitalisation\* OR AB hospitalisation\* OR TI hospital OR AB hospital

**Determinant**

(MH "Early Ambulation") OR (MH "Exercise+") OR (MH "Physical Therapy+") OR (MH "Iatrogenic  
 Disease") OR (MH "Physical Endurance+") OR (MH "Physical Fitness+") OR (MH "Body positions+")  
 OR (MH "Locomotion+") OR (MH "Muscle Fatigue") OR (MH "Muscle strength+") OR (MH "Life  
 Style, Sedentary") OR (MH "Self Care+") OR (MH "Physical Mobility") OR (MH "Physical Mobility  
 Impairment (Saba CCC)") OR (MH "Impaired Physical Mobility (NANDA)") OR (MH "Immobility") OR  
 (MH "Immobility Management (Iowa NIC)") OR (MH "physical activity") OR TI(Ambulation OR  
 Exercis\* OR Fitness OR "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic  
 Disease\*" OR "Iatrogenic disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR



"Muscle Fatigue" OR "Muscle Strength" OR "Muscular Fatigue" OR "Physical activ\*" OR "Physical Effort\*" OR "Physical Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical therap\*" OR Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR "Sedentary behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting Position\*" OR "Standing Position\*" OR stepping) OR AB (Ambulation OR Exercis\* OR Fitness OR "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic Disease\*" OR "Iatrogenic disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR "Muscle Fatigue" OR "Muscle Strength" OR "Muscular Fatigue" OR "Physical activ\*" OR "Physical Effort\*" OR "Physical Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical therap\*" OR Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR "Sedentary behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting Position\*" OR "Standing Position\*" OR stepping OR 'hospital associated disorder')

### Outcome

(MH "Health Status Indicators") OR (MH "Quality of Health Care") OR (MH "Performance Measurement Systems") OR TI("Healthcare Quality indicator\*" OR "Health care Quality indicator\*" OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR "structure indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health indicator\*" OR "health status indicator\*") OR AB("Healthcare Quality indicator\*" OR "Health care Quality indicator\*" OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR "structure indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health indicator\*" OR "health status indicator\*" OR "qualitative NEXT/1 indicator\*" OR "quantitative NEXT/1 indicator\*")

Supplementary Table A3. The second draft of the longlist healthcare quality indicators for the care of patients with (or at risk for) low physical activity during the hospital stay: Dutch version.

<b>Indicator 1:</b>	<b>Het percentage klinische patiënten die zelfstandig kunnen lopen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die zelfstandig lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen, waarbij een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen.
<b>Indicator 2:</b>	<b>Het percentage dagelijkse loopmomenten van klinische patiënten die zelfstandig kunnen lopen, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Patiënten lopen dagelijks zelfstandig, zoals beschreven in het activiteitenplan.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten dat dagelijks zelfstandig loopt, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, dat in staat is om zelfstandig te lopen.
<b>Indicator 3:</b>	<b>Het percentage van klinische patiënten die ondersteuning nodig hebben met lopen van één of meerdere personen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die ondersteuning nodig hebben bij het lopen van een persoon, bij wie een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan die lopen met ondersteuning van een persoon.
<b>Indicator 4:</b>	<b>Het percentage dagelijkse loopmomenten van klinische patiënten die ondersteuning nodig hebben met lopen van een persoon, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor klinische patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die dagelijks lopen met ondersteuning van een persoon, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, die lopen met ondersteuning van een persoon.
<b>Indicator 5:</b>	<b>Het percentage klinische patiënten met fysiotherapeutische begeleiding.</b>
<b>Thema:</b>	Standaard consult fysiotherapie.
<b>Item:</b>	De klinische patiënt ontvangt fysiotherapie begeleiding.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling met fysiotherapie begeleiding.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling.
<b>Indicator 6:</b>	<b>Percentage klinische patiënten met een activiteitenplan binnen 48 uur na opname.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.

1		
2		
3	<b>Item:</b>	Patiënten hebben binnen 48 uur na opname een activiteitenplan.
4	<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een activiteitenplan binnen 48 uur na
5		opname.
6		
7	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
8	<hr/>	
9	<b><u>Indicator 7:</u></b>	<b>Het percentage klinische patiënten, die voor opname mobiel waren, die worden</b>
10		<b>gemobiliseerd binnen 48 uur post operatief.</b>
11	<b>Thema:</b>	Mobiliseren.
12	<b>Item:</b>	Tijdig mobiliseren.
13	<b>Teller:</b>	Het aantal klinische patiënten per afdeling die binnen 48 uur postoperatief mobiliseren.
14	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling na een operatie.
15	<hr/>	
16	<b><u>Indicator 8:</u></b>	<b>Het percentage klinische patiënten met lichamelijke beperking, met een</b>
17		<b>oefenprogramma.</b>
18	<b>Thema:</b>	Een passend oefenprogramma.
19	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
20		ondersteuning van de armleningen om op te staan vanuit de stoel), of
21		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
22		oefenprogramma worden aangeboden.
23	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in lichamelijk
24		functioneren per afdeling, met een oefenprogramma.
25	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in lichamelijk
26		functioneren.
27	<hr/>	
28	<b><u>Indicator 9:</u></b>	<b>Het percentage klinische patiënten met een beperking in dagelijkse activiteiten, met</b>
29		<b>een oefenprogramma.</b>
30	<b>Thema:</b>	Een passend oefenprogramma.
31	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
32		ondersteuning van de armleningen om op te staan vanuit de stoel), of
33		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
34		oefenprogramma worden aangeboden.
35	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in dagelijkse activiteiten
36		per afdeling, met een oefenprogramma.
37	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in dagelijkse
38		activiteiten.
39	<hr/>	
40	<b><u>Indicator 10:</u></b>	<b>Het percentage klinische patiënten dat in staat is zonder hulp te bewegen, bij ontslag.</b>
41	<b>Thema:</b>	Verandering in mobiliteit.
42	<b>Item:</b>	Percentage van patiënten die bij ontslag in staat zijn om zelfstandig te verplaatsen,
43		eventueel met behulp van een rolstoel, van de patiënten die immobiel of afhankelijk van
44		een rolstoel waren bij opname.
45	<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
46		afhankelijk van rolstoel waren, en bij ontslag zelfstandig te verplaatsen, eventueel met
47		behulp van een rolstoel.
48	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
49		afhankelijk van rolstoel waren.
50	<hr/>	
51	<b><u>Indicator 11:</u></b>	<b>Het percentage klinische patiënten dat in staat is zonder hulp te lopen, bij ontslag.</b>
52	<b>Thema:</b>	Patiëntenmobiliteit.
53	<b>Item:</b>	Het inzichtelijk krijgen van het percentage van klinische patiënten die in staat zijn
54		

1  
2  
3 zelfstandig te lopen bij ontslag, eventueel met loophulpmiddel, van de patiënten die  
4 immobiel waren of afhankelijk van een rolstoel bij opname.  
5  
6 **Teller:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of  
7 afhankelijk van rolstoel waren, en bij ontslag zelfstandig lopen, eventueel met behulp  
8 van een loophulpmiddel.  
9  
10 **Noemer:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of  
11 afhankelijk van rolstoel waren.

---

12 **Indicator 12:** **Het percentage artsen, dat gelooft dat ze klinische patiënten stimuleren in het**  
13 **zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

14  
15 **Thema:** Stimuleren zelfstandig ADL.

16 **Item:** De artsen stimuleren klinische patiënten om hun algemeen dagelijkse  
17 levensverrichtingen zelfstandig uit te voeren.

18 **Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het  
19 zelfstandig uitvoeren van dagelijkse levensverrichtingen.

20  
21 **Noemer:** Het aantal artsen per afdeling.

---

22 **Indicator 13:** **Het percentage verpleegkundigen, dat gelooft dat ze klinische patiënten stimuleren in**  
23 **het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

24  
25 **Thema:** Stimuleren zelfstandig ADL.

26 **Item:** De verpleegkundigen stimuleren klinische patiënten om hun algemeen dagelijkse  
27 levensverrichtingen zelfstandig uit te voeren.

28 **Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten  
29 stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

30  
31 **Noemer:** Het aantal verpleegkundigen per afdeling.

---

32 **Indicator 14:** **Het percentage fysiotherapeuten, dat gelooft dat ze klinische patiënten stimuleren in**  
33 **het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

34  
35 **Thema:** Stimuleren zelfstandig ADL.

36 **Item:** De fysiotherapeuten stimuleren klinische patiënten om hun algemeen dagelijkse  
37 levensverrichtingen zelfstandig uit te voeren.

38 **Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten  
39 stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

40  
41 **Noemer:** Het aantal fysiotherapeuten per afdeling.

---

42 **Indicator 15:** **Het percentage artsen, dat gelooft dat ze klinische patiënten stimuleren in het**  
43 **zelfstandig lopen.**

44  
45 **Thema:** Stimuleren lopen.

46 **Item:** De artsen stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de  
47 stoel.

48 **Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het  
49 zelfstandig lopen van het bed naar de stoel.

50  
51 **Noemer:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het  
52 zelfstandig lopen van het bed naar de stoel.

---

53 **Indicator 16:** **Het percentage verpleegkundigen, dat gelooft dat ze klinische patiënten stimuleren in**  
54 **het zelfstandig lopen.**

55  
56 **Thema:** Stimuleren lopen.

57 **Item:** De verpleegkundigen stimuleren klinische patiënten om zelfstandig te lopen van het bed  
58 naar de stoel.  
59  
60

1		
2		
3	<b>Teller:</b>	Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten
4		stimuleren in het zelfstandig lopen van het bed naar de stoel.
5		
6	<b>Noemer:</b>	Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten
7		stimuleren in het zelfstandig lopen van het bed naar de stoel.
8		<hr/>
9	<b><u>Indicator 17:</u></b>	<b>Het percentage fysiotherapeuten, dat gelooft dat ze klinische patiënten stimuleren in het zelfstandig lopen.</b>
10		
11	<b>Thema:</b>	Stimuleren lopen.
12	<b>Item:</b>	De fysiotherapeuten stimuleren klinische patiënten om zelfstandig te lopen van het bed
13		naar de stoel.
14		
15	<b>Teller:</b>	Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten
16		stimuleren in het zelfstandig lopen van het bed naar de stoel.
17		
18	<b>Noemer:</b>	Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten
19		stimuleren in het zelfstandig lopen van het bed naar de stoel.
20		<hr/>
21	<b><u>Indicator 18:</u></b>	<b>Het percentage klinische patiënten met vrijheidsbeperkende middelen.</b>
22		
23	<b>Thema:</b>	Immobilisatie.
24	<b>Item:</b>	Inventariseren van gebruik van vrijheidsbeperkende middelen voor het voorkomen van
25		vallen.
26	<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling waarbij vrijheidsbeperkende
27		middelen zijn ingezet.
28	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling.
29		<hr/>
30	<b><u>Indicator 19:</u></b>	<b>Het percentage klinische patiënten met een valincident, waarbij het valincident binnen</b>
31		<b>24 uur wordt geëvalueerd.</b>
32	<b>Thema:</b>	Evaluatie vallen.
33	<b>Item:</b>	Er vindt een evaluatie plaats van een valincident binnen 24 uur. De evaluatie bestaat uit
34		ten minste medicijngebruik en aan- of afwezigheid van (voortekenen van) ziekte.
35	<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een valincident, waarbij dit geëvalueerd
36		is binnen 24 uur.
37		
38	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling met een valincident.
39		<hr/>
40	<b><u>Indicator 20:</u></b>	<b>Het percentage klinische patiënten met documentatie van een valincident.</b>
41	<b>Thema:</b>	Documentatie vallen.
42	<b>Item:</b>	Er vindt documentatie plaats van een valincident, waarbij de potentiële oorzaken zijn
43		beschreven.
44	<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een documentatie van een valincident.
45	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling met een valincident.
46		<hr/>
47	<b><u>Indicator 21:</u></b>	<b>Het percentage klinische patiënten met documentatie van preopname functioneren.</b>
48	<b>Thema:</b>	Preopname functioneren.
49	<b>Item:</b>	Er vindt documentatie plaats van het preopname functioneren. De documentatie betreft
50		beschrijven van het valrisico, gebruik van rollator of stok en de onafhankelijkheid in het
51		uitvoeren van algemeen dagelijkse levensverrichtingen voor opname.
52		
53	<b>Teller:</b>	Het aantal klinische patiënten per afdeling, waarbij het preopname functioneren is
54		gedocumenteerd.
55		
56	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
57		<hr/>
58	<b><u>Indicator 22:</u></b>	<b>Het percentage klinische patiënten, bij wie tijdens opname een evaluatie van de</b>
59		<b>mobilititeit plaatsvindt.</b>
60	<b>Thema:</b>	Evaluatie mobiliteit.

**Item:** Bij opname in het ziekenhuis worden de volgende transfers geëvalueerd: van lig naar zit transfereren zonder hulp; uit bed komen en tot stand komen vanuit bed; een aantal passen lopen, en het gebruik maken van een stok of een rollator zo nodig.

**Teller:** Het aantal klinische patiënten per afdeling waar bij opname een evaluatie van mobiliteit plaatsvindt.

**Noemer:** Het aantal klinische patiënten per afdeling.

---

**Indicator 23: Het percentage klinische patiënten met geïnformeerde familie.**

**Thema:** Informeren familie.

**Item:** De klinische patiënten en familie zijn geïnformeerd over het belang van bewegen.

**Teller:** Het aantal klinische patiënten met familie per afdeling, die zijn geïnformeerd over het belang van bewegen.

**Noemer:** Het aantal klinische patiënten met familie per afdeling.

---

**Indicator 24: Het percentage klinische patiënten dat is geïnformeerd over hun zorgtraject.**

**Thema:** Informeren patiënt.

**Item:** Het zorgtraject met betrekking tot bewegen wordt samen met de klinische patiënt besproken. Een zorgtraject met betrekking tot bewegen bestaat onder andere uit het bespreken van het benodigde niveau van fysiek functioneren voor ontslag.

**Teller:** Het aantal klinische patiënten per afdeling, waar bij het zorgtraject met betrekking tot bewegen is besproken.

**Noemer:** Het aantal klinische patiënten per afdeling.

---

**Indicator 25: Het percentage artsen, dat bedrust beschouwt als de dagelijkse gang van zaken.**

**Thema:** Mindset.

**Item:** De mindset van artsen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.

**Teller:** Het aantal artsen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.

**Noemer:** Het aantal artsen per afdeling.

---

**Indicator 26: Het percentage verpleegkundigen, dat bedrust beschouwt als de dagelijkse gang van zaken.**

**Thema:** Mindset.

**Item:** De mindset van verpleegkundigen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.

**Teller:** Het aantal verpleegkundigen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.

**Noemer:** Het aantal verpleegkundigen per afdeling.

---

**Indicator 27: Het percentage fysiotherapeuten, dat bedrust beschouwt als de dagelijkse gang van zaken.**

**Thema:** Mindset.

**Item:** De mindset van fysiotherapeuten draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.

**Teller:** Het aantal fysiotherapeuten per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.

**Noemer:** Het aantal fysiotherapeuten per afdeling.

---

**Indicator 28: Het percentage klinische patiënten met bedrust zonder medische noodzaak.**

**Thema:** Bedrust.

1		
2		
3	<b>Item:</b>	Bedrust zonder medische noodzaak is van belang bij de hoeveelheid bewegen voor de
4		klinisch opgenomen patiënt.
5	<b>Teller:</b>	Het aantal klinische patiënten per afdeling dat bedrust heeft voorgeschreven gekregen,
6		zonder medische noodzaak.
7	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
8		
9	<b>Indicator 29:</b>	<b>Het percentage lager opgeleide zorgverleners op de afdeling.</b>
10	<b>Thema:</b>	Niveau van opleiding.
11	<b>Item:</b>	Lager opgeleide zorgmedewerkers geven een lagere prioriteit aan het mobiliseren van
12		patiënten dan hoger opgeleide zorg medewerkers.
13	<b>Teller:</b>	Het aantal lager opgeleide zorgverleners op de afdeling.
14	<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
15		
16	<b>Indicator 30:</b>	<b>Het percentage zorgverleners, dat aangeeft dat werkdruk een beperkende factor is</b>
17		<b>voor het mobiliserende van klinische patiënten.</b>
18	<b>Thema:</b>	Werkdruk.
19	<b>Item:</b>	Werkdruk heeft een negatief effect op het structureel bewegen van patiënten.
20	<b>Teller:</b>	Het aantal zorgverleners op de afdeling, die aangeeft dat de eigen werkdruk een
21		beperkende factor is voor de optimale hoeveelheid beweging van patiënten.
22	<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
23		
24	<b>Indicator 31:</b>	<b>Het percentage klinische patiënten, dat ervaart te vroeg ontslagen te zijn.</b>
25	<b>Thema:</b>	Triagesysteem.
26	<b>Item:</b>	Met de invoering van het triagesysteem ligt er druk op het ontslaan van patiënten
27		minder op zelfstandig kunnen bewegen.
28	<b>Teller:</b>	Het aantal klinische patiënten dat wordt ontslagen, en ervaart dat ze te vroeg ontslagen
29		worden.
30	<b>Noemer:</b>	Het aantal klinische patiënten dat wordt ontslagen.
31		
32	<b>Indicator 32:</b>	<b>Het percentage klinische patiënten, dat wordt beperkt in het uitvoeren van transfers</b>
33		<b>door meubilair.</b>
34	<b>Thema:</b>	Meubels.
35	<b>Item:</b>	Het gebruik van hoge bedden met bedrekken en stoelen die moeilijk bereikbaar zijn is
36		van invloed op het bewegen van klinische patiënten.
37	<b>Teller:</b>	Het aantal opgenomen klinische patiënten, die beperkt worden in het zelfstandig
38		uitvoeren van transfers door hoge bedden, hoge stoelen, of het gebruik van bijvoorbeeld
39		bedrekken.
40	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten.
41		
42	<b>Indicator 33:</b>	<b>Het percentage van klinische patiënten, dat de beschikking heeft over een geadviseerd</b>
43		<b>loophulpmiddel.</b>
44	<b>Thema:</b>	Hulpmiddelen.
45	<b>Item:</b>	Er moeten voldoende loophulpmiddelen beschikbaar zijn om het bewegen van patiënten
46		mogelijk te maken.
47	<b>Teller:</b>	Het aantal klinische patiënten per afdeling die beschikking hebben over een geadviseerd
48		loophulpmiddel.
49	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling, dat geadviseerd wordt te lopen met een
50		loophulpmiddel.
51		
52	<b>Indicator 34:</b>	<b>Het percentage van klinische patiënten die beschikking hebben over een relax stoel.</b>
53	<b>Thema:</b>	Hulpmiddelen.
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3 **Item:** Er moeten voldoende relaxstoelen beschikbaar zijn om het bewegen van patiënten  
4 mogelijk te maken.  
5 **Teller:** Het aantal klinisch patiënten per afdeling die beschikking hebben over een relaxstoel.  
6 **Noemer:** Het aantal klinisch patiënten per afdeling.

---

7 **Indicator 35: Het percentage van klinische patiënten die beschikking hebben over een bedfiets.**

8 **Thema:** Hulpmiddelen.

9 **Item:** Er moeten voldoende bedfietsen beschikbaar zijn om het bewegen van patiënten  
10 mogelijk te maken.

11 **Teller:** Het aantal klinisch patiënten per afdeling met het advies gebruik te maken van de  
12 bedfiets, die beschikking hebben over een bedfiets.

13 **Noemer:** Het aantal klinisch patiënten per afdeling, dat geadviseerd wordt gebruik te maken van  
14 een bedfiets.

---

15 **Indicator 36: Het percentage van artsen dat is geschoold in het aanbieden van beweegzorg bij  
16 klinische patiënten.**

17 **Thema:** Scholing.

18 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van beweegzorg bij  
19 patiënten voor alle artsen medewerkers/zorgverleners die werkzaam zijn op de afdeling.

20 **Teller:** Het aantal artsen dat scholing heeft gevolgd met betrekking tot het aanbieden van  
21 beweegzorg bij klinische patiënten.

22 **Noemer:** Het aantal artsen dat op de afdeling werkt.

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23 **Indicator 37: Het percentage van verpleegkundigen dat is geschoold in het aanbieden van  
24 beweegzorg bij klinische patiënten.**

25 **Thema:** Scholing.

26 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van beweegzorg bij  
27 patiënten voor alle verpleegkundigen die werkzaam zijn op de afdeling.

28 **Teller:** Het aantal verpleegkundigen dat scholing heeft gevolgd met betrekking tot het  
29 aanbieden van beweegzorg bij patiënten.

30 **Noemer:** Het aantal verpleegkundigen dat op de afdeling werkt.

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31 **Indicator 38: Het percentage van fysiotherapeuten dat is geschoold in het aanbieden van  
32 beweegzorg bij klinische patiënten.**

33 **Thema:** Scholing.

34 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van beweegzorg bij  
35 patiënten voor alle fysiotherapeuten die werkzaam zijn op de afdeling.

36 **Teller:** Het aantal fysiotherapeuten dat scholing heeft gevolgd met betrekking tot het  
37 aanbieden van beweegzorg bij patiënten.

38 **Noemer:** Het aantal fysiotherapeuten dat op de afdeling werkt.

---

39 **Indicator 39: Het percentage van artsen dat gelooft beweeggedrag te stimuleren bij patiënten.**

40 **Thema:** Mindset artsen.

41 **Item:** De mindset van artsen draagt bij aan het motiveren, stimuleren en initiëren van  
42 beweeggedrag bij patiënten.

43 **Teller:** Het aantal artsen per afdeling, die geloven dat ze beweeggedrag stimuleren bij  
44 patiënten.

45 **Noemer:** Het aantal artsen per afdeling.

---

46 **Indicator 40: Het percentage van verpleegkundigen dat gelooft beweeggedrag te stimuleren bij  
47 patiënten.**



1		
2		
3	<b>Thema:</b>	Mindset verpleegkundigen.
4	<b>Item:</b>	De mindset van verpleegkundigen draagt bij aan het motiveren, stimuleren en initiëren
5		van beweggedrag bij patiënten.
6		
7	<b>Teller:</b>	Het aantal verpleegkundigen per afdeling, die geloven dat ze beweggedrag stimuleren
8		bij patiënten.
9		
10	<b>Noemer:</b>	Het aantal verpleegkundigen per afdeling.
11	<b><u>Indicator 41:</u></b>	<b>Het percentage van fysiotherapeuten dat gelooft beweggedrag te stimuleren bij</b>
12		<b>patiënten.</b>
13	<b>Thema:</b>	Mindset fysiotherapeuten.
14	<b>Item:</b>	De mindset van fysiotherapeuten draagt bij aan het motiveren, stimuleren en initiëren
15		van beweggedrag bij patiënten.
16		
17	<b>Teller:</b>	Het aantal fysiotherapeuten per afdeling, die geloven dat ze beweggedrag stimuleren
18		bij patiënten.
19		
20	<b>Noemer:</b>	Het aantal fysiotherapeuten per afdeling.
21	<b><u>Indicator 42</u></b>	<b>Het percentage klinische patiënten, dat loopt met een vrijwilliger</b>
22		
23	<b>Thema:</b>	Vrijwilligers.
24	<b>Item:</b>	Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met een
25		vrijwilliger in het ziekenhuis.
26		
27	<b>Teller:</b>	Er is/zijn vrijwilliger(s) aanwezig op de afdeling die ondersteunen bij lopen.
28	<b><u>Indicator 43</u></b>	<b>Het percentage klinische patiënten, dat loopt met familie.</b>
29		
30	<b>Thema:</b>	Familie.
31	<b>Item:</b>	Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met familie in
32		het ziekenhuis.
33		
34	<b>Teller:</b>	Er zijn familieleden aanwezig op de afdeling die ondersteunen bij lopen.
35	<b><u>Indicator 44</u></b>	<b>Mobiliteit beperkende middelen worden dagelijks geëvalueerd.</b>
36		
37	<b>Thema:</b>	Evaluatie immobilisatie.
38	<b>Item:</b>	Regelmatige evaluatie van de inzet van mobiliteit beperkende middelen bij klinische
39		patiënten, zoals zuurstofslangen, blaas katheters en intraveneuze katheters.
40		
41	<b>Teller:</b>	Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van mobiliteit
42		beperkende middelen bij klinische patiënten.
43	<b><u>Indicator 45</u></b>	<b>Patiëntenmobiliteit is opgenomen in de normen van het ziekenhuis.</b>
44		
45	<b>Thema:</b>	Cultuur.
46	<b>Item:</b>	De norm in het ziekenhuis is dat patiënten regelmatig lopen, als ze dat kunnen.
47	<b>Teller:</b>	In de normen van het ziekenhuis staat beschreven dat er verwacht wordt dat patiënten
48		regelmatig lopen als ze dat kunnen.
49	<b><u>Indicator 46</u></b>	<b>Vrijheidsbeperkende middelen worden dagelijks geëvalueerd.</b>
50		
51	<b>Thema:</b>	Evaluatie immobilisatie.
52	<b>Item:</b>	Er vindt regelmatig evaluatie plaats van de inzet van vrijheidsbeperkende middelen bij
53		klinische patiënten, zoals buikband, vijf punt fixatie, rolstoelblad, rem van de rolstoel.
54		
55	<b>Teller:</b>	Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van vrijheidsbeperkende
56		middelen bij klinische patiënten.
57	<b><u>Indicator 47</u></b>	<b>Het ziekenhuis heeft een kritische houding ten aanzien van het inzetten van</b>
58		<b>immobiliserende middelen bij valgevaarlijke patiënten.</b>
59	<b>Thema:</b>	Cultuur.
60	<b>Item:</b>	De norm van het ziekenhuis is een kritische houding te hebben ten aanzien van de inzet

	van immobiliserende middelen bij valgevaarlijke klinische patiënten.
<b>Teller:</b>	In de normen van het ziekenhuis staat beschreven dat de inzet van immobiliserende middelen bij valgevaarlijke klinische patiënten kritisch wordt bekeken.
<b><u>Indicator 48</u></b>	<b>De inzet van pijnstillende middelen wordt dagelijks geëvalueerd ten behoeve van het pijn vrij mobiliseren van de klinische patiënt.</b>
<b>Thema:</b>	Evaluatie pijnmedicatie.
<b>Item:</b>	Er vindt regelmatige evaluatie plaats van pijnmedicatie bij de klinische patiënt, ten behoeve van het bewegen.
<b>Teller:</b>	Er vindt dagelijks per afdeling een evaluatie plaats van de inzet van pijnstillende middelen bij klinische patiënten, ten behoeve van het bewegen.
<b><u>Indicator 49</u></b>	<b>Het informeren van de familie van de klinische patiënt ten aanzien van het belang van bewegen is een norm van het ziekenhuis.</b>
<b>Thema:</b>	Cultuur.
<b>Item:</b>	De norm van het ziekenhuis is het informeren van de familie van de klinische patiënt ten aanzien van het belang van bewegen.
<b>Teller:</b>	In de normen van het ziekenhuis staat beschreven dat de familie van de klinische patiënt geïnformeerd wordt over het belang van bewegen.
<b><u>Indicator 50</u></b>	<b>Het aantal stappen dat een klinische patiënt loopt.</b>
<b>Thema:</b>	Bewegen.
<b>Item:</b>	De totale hoeveelheid stappen die een klinische patiënt per dag loopt.
<b>Teller:</b>	Het aantal stappen dat een klinisch opgenomen patiënt loopt per dag.
<b><u>Indicator 51</u></b>	<b>De klinische patiënt kan zich goed oriënteren in het ziekenhuis.</b>
<b>Thema:</b>	Ziekenhuisomgeving.
<b>Item:</b>	De gebouwde ziekenhuisomgeving is van belang om desoriëntatie van de klinische patiënt te voorkomen en mobilisatie te stimuleren.
<b>Teller:</b>	Er is gebruik gemaakt van oriënterende middelen, zoals looproutes en/of routewijzers, ter ondersteuning van de oriëntatie van klinische patiënten.
<b><u>Indicator 52</u></b>	<b>De klinische patiënt wordt gestimuleerd om te bewegen door de inrichting van de afdeling.</b>
<b>Thema:</b>	Omgeving.
<b>Item:</b>	Aanwezigheid van foto's, kunst en/of ander beeldmateriaal om patiënten te stimuleren om te bewegen.
<b>Teller:</b>	Is er gebruik gemaakt van foto's, kunst en/of ander beeldmateriaal op de wandelgangen van de afdeling?
<b><u>Indicator 53</u></b>	<b>De klinische patiënt heeft een beweegruimte op de afdeling.</b>
<b>Thema:</b>	Omgeving.
<b>Item:</b>	Aanwezigheid van een beweegruimte.
<b>Teller:</b>	Is er een beweegruimte aanwezig op de afdeling?
<b><u>Indicator 54</u></b>	<b>De klinische patiënt heeft zonlicht op de patiëntenkamer.</b>
<b>Thema:</b>	Omgeving.
<b>Item:</b>	Aanwezigheid van zonlicht op de patiëntenkamer.
<b>Teller:</b>	Is er zonlicht op de patiëntenkamer?

Supplementary Table A4. Overview of ratings in the consensus rounds with the corresponding decision: selection, discussion, or no selection.

	First round		Second round		Third round	
<b>Theme: Exercise program and physical activity plan</b>	Median (%HT)	Decision	Median (%HT)	Decision	Median (%HT)	Decision
1. Patients without the need for support during mobilization should have a physical activity plan.	7 (79%)	D	8 (100%)	S		
2. Patients should receive support for mobilization.	8 (79%)	S				
3. Patients in need for support during mobilization should have a physical activity plan	8 (93%)	S	8 (60%)	D	8 (100%)	S
4. Patients should perform physical activities as described in their physical activity plan.	8 (86%)	S	8 (100%)	S		
6. Patients should be physically active within 48 hours after hospital admission.	8 (64%)	D	8 (100%)	S		
8. Patients with a physical disability should have an exercise program.	7 (71%)	D	6 (40%)	NS		

1  
2  
3 9. Patients who are dependent in 7 (64%) NS  
4  
5 activities of daily living should have  
6  
7 an exercise program.  
8  
9

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10 **Theme: Assistance during**  
11  
12 **mobilization**

13  
14  
15  
16 5. Patients should walk with a 8 (64%) D 4 (20%) NS  
17  
18 physical therapist.  
19

20  
21 10. Patients should be independent in 7 (64%) NS  
22  
23 activities of daily living at discharge.  
24

25  
26 42. Patients should walk with 7 (64%) NS  
27  
28 volunteers.  
29

30  
31 43. Patients should walk with close- 8 (86%) S 7 (100%) D 7 (60%) NS  
32  
33 relatives.  
34

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35  
36 **Theme: Mobilizing**

37  
38  
39 7. Patients should be physically active 8 (86%) S 8 (80%) S  
40  
41 within 48 hours after hospital  
42  
43 admission.  
44  
45

46  
47 11. Patients should mobilize 7 (64%) NS  
48  
49 independently at discharge.  
50

51  
52 50. The number of steps of a patient 6 (43%) NS  
53  
54 during hospital stay per day.  
55

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56  
57 **Theme: Attitude**  
58  
59  
60

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12. Physicians should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
13. Nurses should stimulate independent functioning in daily activities of patients.	8 (86%)	S	8 (80%)	S
14. Physical therapists should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
15. Physicians should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
16. Nurses should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	7 (57%)	NS		
17. Physical therapists should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
39. Physicians should stimulate physical activity of patients.	7 (71%)	D	8 (80%)	S

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40. Nurses should stimulate physical activity of patients.	8 (86%)	S	8 (80%)	S		
41. Physical therapists should stimulate physical activity of patients.	7 (72%)	D	6 (40%)	NS		
<b>Theme: Use of restraints</b>						
18. The number of patients with mobility limiting equipment.	7 (71%)	D	6 (40%)	NS		
44. Nurses should evaluate freedom limiting equipment.	8 (71%)	S	8 (100%)	S		
46. Nurses should evaluate mobility limiting equipment.	8 (79%)	S				
47. The hospital (ward) should have a policy to minimize the use of mobility limiting equipment in patients at risk for falling.	8 (79%)	S	8 (60%)	D	7 (80%)	D
48. Patients should have an acceptable degree of pain.	8 (79%)	S	8 (60%)	D	8 (80%)	S
<b>Theme: Fall incident</b>						
19. Patients should be evaluated after a fall incident.	8 (71%)	S				
20. The number of documented fall incidents.	8 (57%)	D	5 (0%)	NS		

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**Theme: Documentation**


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21. Nurses or physical therapists 8 (93%) S 8 (100%) S

should evaluate the preadmission  
physical ability.

22. Nurses or physical therapists 8 (79%) S 8 (100%) S

should evaluate the mobility.

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**Theme: Providing information**


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23. Close-relatives of patients should 7 (79%) D 8 (80%) S

be informed about the importance of  
physical activity.

24. Patients should be informed 8 (71%) S

about the importance of physical  
activity.

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**Theme: Bed rest**


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25. Physicians should consider bed 6 (50%) NS

rest as an abnormal medical  
procedure.

26. Nurses should consider bed rest 6 (50%) NS

as an abnormal procedure.

27. Physical therapists should 6 (29%) NS

consider bed rest as an abnormal  
procedure.

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2  
3 28. The number of patients with bed 6 (50%) NS 7 (60%) NS  
4  
5 rest without medical urgency.  
6  
7

8 **Theme: Education**  
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10  
11 29. The number of lower educated 2 (0%) NS  
12  
13 healthcare providers.  
14  
15

16 36. Physicians should have followed 7 (71%) D 7 (60%) NS  
17  
18 education related to physical activity  
19  
20 of patients.  
21  
22

23 37. Nurses should have followed 7 (86%) D 8 (80%) S  
24  
25 education related to physical activity  
26  
27 of patients.  
28  
29

30 38. Physical therapists should have 7 (64%) NS  
31  
32 followed education related to  
33  
34 physical activity of patients.  
35  
36  
37

38 **Theme: Work pressure**  
39

40  
41 30. Nurses should be aware of work 8 (79%) S 7 (100%) D 7 (100%) D  
42  
43 pressure being a limiting factor for  
44  
45 physical activity in patients.  
46  
47

48 31. The number of patients who 5 (29%) NS  
49  
50 experience to be discharged too  
51  
52 early.  
53  
54

55 **Theme: Environment**  
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32. Hospital rooms should be equipped with adequate furniture to improve physical activity.	7 (71%)	D	7 (80%)	D	7 (80%)	D
51. The hospital (ward) has orientation promoting resources.	7 (57%)	NS	7 (100%)	D	8 (100%)	S
52. The hospital (ward) provides adequate resources to stimulate physical activity.	8 (86%)	S	8 (100%)	S		
53. Patients should have access to a movement room.	8 (79%)	S	7 (60%)	NS		
54. Patients should have sunlight in their hospital room.	7 (64%)	NS				
<b>Theme: Aids for mobilization</b>						
33. Patients should have adequate walking aids.	8 (86%)	S				
34. Patients should have comfortable chairs.	8 (79%)	S	6 (40%)	NS		
35. Patients should have access to ergometers.	4 (28%)	NS				
<b>Theme: Culture</b>						
45. The hospital (ward) should have a policy to improve physical activity of	8 (86%)	S	8 (100%)	S		

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3 patients.  
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6 49. The hospital (ward) should have a 8 (79%) S 8 (80%) S  
7

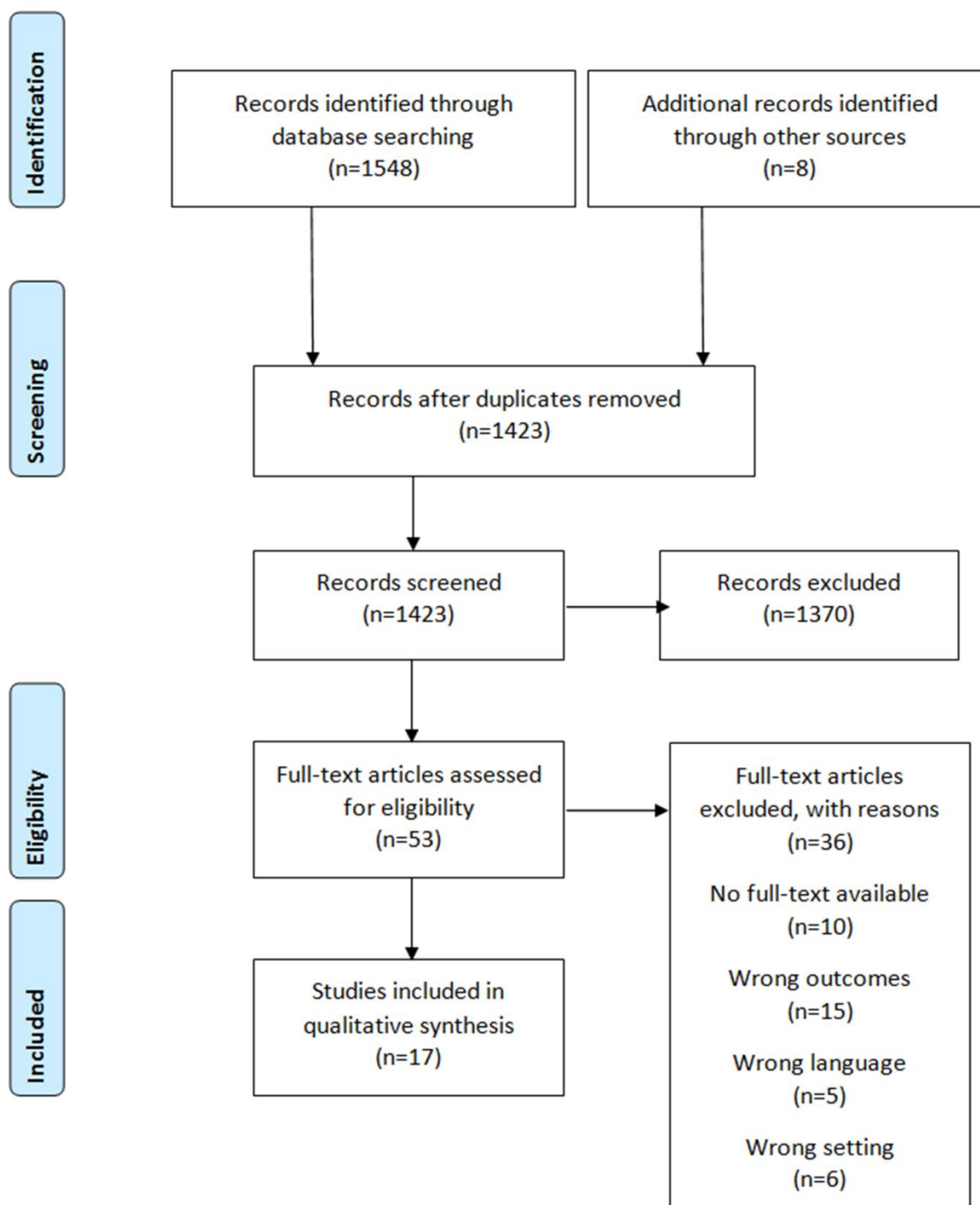
8 policy to inform close-relatives about  
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10 physical activity.  
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13 *Abbreviations: %HT, percentage in highest tertile; D, discussion; NS, no selection; S, selection*  
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Supplementary Figure A1. Flow diagram of study selection.



# BMJ Open

## Development of a longlist with healthcare quality indicators for physical activity of patients during hospital stay: a modified RAND Delphi study

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Keywords:	Healthcare quality indicator, Performance indicator, Quality measure, Physical activity

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Manuscripts

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3 1 **TITLE**  
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6 2 Development of a longlist with healthcare quality indicators for physical activity of patients  
7  
8 3 during hospital stay: a modified RAND Delphi study  
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11  
12 4 **AUTHOR NAMES AND AFFILIATIONS**  
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55 19 **RUNNING TITLE**  
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58 20 Indicators for inpatient physical activity  
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3 21 **KEYWORDS**  
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6 22 Healthcare quality indicator, performance indicator, quality measure, physical activity  
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9 23 **WORD, REFERENCE AND GRAPHICS COUNT**  
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11

12 24 Abstract: 298  
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14 25 Main text: 2932  
15

16 26 References: 52  
17

18 27 Tables: 2  
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20 28 Figures: 1  
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24  
25 29 **BRIEF SUMMARY**  
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27  
28 30 A longlist with 23 quality indicators was constructed to grade, monitor, and improve care for  
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30 31 hospitalized adults of all ages with (or at risk of) low physical activity during hospital stay.  
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3 32 **ABSTRACT**  
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5

6 33 **Objective**  
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9 34 To develop a longlist with healthcare quality indicators for the care of hospitalized adults of  
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11 35 all ages with (or at risk of) low physical activity during the hospital stay.  
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13

14  
15 36 **Design**  
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18 37 A modified RAND/UCLA Appropriateness Method Delphi study.  
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20

21 38 **Setting and Participants**  
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23  
24 39 Participants were physical therapists, nurses, and managers working in Dutch university  
25  
26 40 medical centers.  
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30 41 **Methods**  
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32  
33 42 The current study consisted of three phases. Phase 1 was a systematic literature search for  
34  
35 43 quality indicators and relevant topics. Phase 2 was a survey amongst healthcare  
36  
37 44 professionals to collect additional data. Phase 3 consisted of three consensus rounds. In  
38  
39 45 round one, experts rated the relevance of the potential indicators online (Delphi). The  
40  
41 46 second round was a face-to-face expert panel meeting managed by an experienced  
42  
43 47 moderator. The second round was a face-to-face expert panel meeting. Acceptability,  
44  
45 48 feasibility, and validity of the quality indicators were discussed by the panel members.  
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47 49 Disagreements were solved online (Delphi) in the third round.  
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53 50 **Results**  
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56 51 The search retrieved 1,556 studies of which 53 studies were assessed full-text. Data from  
57  
58 52 seventeen studies were included in a first draft longlist with indicators. Eighteen nurses and  
59  
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2  
3 53 one physical therapist responded to the survey and added data for a second draft of the  
4  
5  
6 54 longlist. Experts constructed the final longlist with 23 indicators in three consensus rounds.  
7  
8 55 Eight domains were identified: “Aim”, “Patient-tailored physical activity plan”, “Evaluation of  
9  
10 56 physical activity”, “Information on physical activity”, “Equipment to stimulate physical  
11  
12 57 activity”, “Policy regarding physical activity”, “Attitude related to physical activity”, and  
13  
14  
15 58 “Other”.

## 18 59 **Conclusion and Implications**

21 60 The healthcare quality indicators developed in this study could help to grade, monitor, and  
22  
23 61 improve healthcare for hospitalized adults of all ages with (or at risk of) low physical activity  
24  
25 62 during the hospital stay. Future research will focus on the psychometric quality of the  
26  
27 63 indicators and selection of key performance indicators.  
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29

## 32 64 **Strengths and limitations of this study**

- 35 65 - The current study consists of a systematic review with duplicate study selection, an  
36  
37 66 extra survey in healthcare professionals, and three consensus rounds with a panel  
38  
39  
40 67 meeting.  
41  
42 68 - The panel meeting has been moderated by an internationally experienced moderator  
43  
44  
45 69 - The longlist with healthcare quality indicators was developed by a multidisciplinary  
46  
47 70 group of healthcare professionals including nurses, physical therapists, and  
48  
49  
50 71 managers.  
51  
52 72 - Extending the list to patients, other healthcare professionals, and healthcare insurers  
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55 73 is recommended.  
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## 74 INTRODUCTION

75 Low physical activity of patients during the hospital stay has been extensively reported,<sup>1 2</sup>  
76 especially in older patients.<sup>3-5</sup> Low physical activity is a global healthcare issue with known  
77 adverse effects such as decreased strength, functional decline, a prolonged hospital stay,  
78 and institutionalization.<sup>6-9</sup> Common barriers to physical activity during the hospital stay  
79 include: symptoms (i.e. fatigue and pain), lack of motivation, medical devices, and the  
80 hospital environment.<sup>10-13</sup> Several quality improvement initiatives have been developed to  
81 improve physical activity of patients during the hospital stay.<sup>14-18</sup> Nevertheless, quality  
82 indicators to measure the results of such quality improvement strategies are scarce.<sup>19-21</sup>

83 Healthcare quality indicators, also known as performance indicators or quality measures, are  
84 used all over the world to quantify, grade, monitor, and improve the quality of healthcare.<sup>22-</sup>  
85 <sup>24</sup> Recently, qualitative indicators have also been introduced to express matters that are hard  
86 to capture quantitatively such as having confidence in being safe in a community.<sup>25</sup> Quality  
87 indicators are used in hospital care to provide information for quality improvement  
88 initiatives to, for example, decrease hospital mortality and complications.<sup>26 27</sup> Regarding the  
89 management of (low) physical activity of patients during the hospital stay, quality indicators  
90 could be helpful to capture persisting barriers in an attempt to improve the physical activity  
91 of all patients.<sup>28</sup> As a first step, a longlist with relevant quality indicators is needed to serve  
92 as a database for healthcare professionals, clinical teams, and organizations to measure  
93 performance for quality improvement purposes.<sup>21</sup> Therefore, the aim of this study is to  
94 develop a longlist with quality indicators for the healthcare in hospitalized adults of all ages  
95 with (or at risk of) low physical activity during the hospital stay.

## 96 **METHODS**

### 97 **Design and setting**

98 A modified RAND/UCLA Appropriateness Method Delphi study<sup>29</sup> was used to develop a  
99 longlist with quality indicators which meets the requirements of the Appraisal of Guidelines  
100 for Research and Evaluation (AGREE) II Healthcare Quality Indicator tool.<sup>30</sup> The AGREE II tool  
101 was used as a guiding checklist for study development (Supplementary Table A1). The  
102 reporting of this study followed guidelines of the Standards for QUality Improvement  
103 Reporting Excellence (SQUIRE 2.0).<sup>31</sup> The study was conducted as a quality improvement  
104 initiative of the Radboud university medical center and followed the principles of the  
105 Declaration of Helsinki<sup>32</sup> and Good Clinical Practice Guideline<sup>33</sup>. Full ethical consideration  
106 was waived by the Ethics Committee of the Radboud university medical center in accordance  
107 with the Dutch Medical Research with Human Subjects Law.

108 All phases from the RAND/UCLA method were followed (Figure 1). Phase 1 was a systematic  
109 literature search to identify indicators and relevant topics for potential indicators. Phase 2  
110 was an extra survey amongst healthcare professionals to provide additional relevant topics.  
111 This extra survey was a modification to the original RAND/UCLA method to obtain as many  
112 relevant indicators and topics as possible. Phase 3 consisted of three consensus rounds in  
113 which potential indicators were rated for their relevance by experts.

### 114 **Literature search**

115 The literature search was conducted to develop the first draft of a longlist with quality  
116 indicators for physical activity of hospitalized adults of all ages. CINAHL, MEDLINE, and  
117 EMBASE were systematically searched for studies up to 24 January 2018 using a pre-defined  
118 search strategy (Supplementary Table A2). The search strategy was compiled with the help

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2  
3 119 of an experienced librarian (OYC). The study selection and data extraction were  
4  
5 120 independently performed by two researchers (NK, SH).<sup>34</sup> An indicator was considered  
6  
7 121 relevant if a definition, numerator, and denominator were described in the literature and  
8  
9  
10 122 related to physical activity of patients during the hospital stay. A topic was considered  
11  
12  
13 123 relevant when information in the text of articles commented on the physical activity of  
14  
15 124 patients during the hospital stay.

### 18 125 **Extra survey**

21 126 All indicators and topics were then translated into the Dutch language and presented to a  
22  
23 127 convenience sample of healthcare professionals and managers of one Dutch academic  
24  
25  
26 128 hospital using an online questionnaire in LimeSurvey.<sup>35</sup> The participants were requested to  
27  
28  
29 129 suggest additional topics related to physical activity of hospitalized adults of all ages.  
30  
31 130 Furthermore, problems as a result of unclear translation or unclear formulation were solved  
32  
33  
34 131 with the help of the participants. The second draft was constructed by two researchers (NK,  
35  
36 132 SH) with quality indicators from both the literature review and additional input from  
37  
38  
39 133 healthcare professionals and managers. Each topic was converted into an indicator by  
40  
41 134 formulating a definition, numerator, and denominator. All converted topics were checked  
42  
43  
44 135 for loss of information due to the translation by a third researcher (TH).

### 46 136 **Consensus rounds**

49 137 The second draft of the longlist with quality indicators was presented for relevance rating in  
50  
51  
52 138 the three consensus rounds with experts.<sup>36</sup> To include a group of multidisciplinary experts in  
53  
54  
55 139 the consensus rounds, we purposefully sampled national experts.<sup>37</sup> The multidisciplinary  
56  
57 140 expert panel consisted of 28 experts (12 physical therapists, 11 nurses, 5 managers). All  
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59 141 experts worked in a university medical center (secondary care); participated in care,

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3 142 research, and innovation of physical activity in patients during the hospital stay; and were  
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5 143 representatives of an acknowledged national workgroup called *Moving Hospitals* (in Dutch:  
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8 144 *Beweegziekenhuizen*). The experts were approached by email and telephone for  
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10 145 participation in this study.

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12  
13 146 In the first consensus round (Delphi method), the experts received the longlist with quality  
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15  
16 147 indicators online in LimeSurvey. All indicators were rated on relevance by the experts for the  
17  
18 148 first consensus label: *selection*, *discussion* or *no selection*. In the second round, all quality  
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20 149 indicators were discussed in a panel meeting with experts (panel members) moderated by  
21  
22  
23 150 an experienced moderator (PW). First, the panel members discussed the acceptability to  
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25 151 healthcare professionals and managers, the feasibility of use, and the validity in terms of  
26  
27 152 providing more appropriate care and optimizing patient outcomes.<sup>29</sup> Finally, all panel  
28  
29 153 members voted (yes or no) for final consensus on *selection*, *discussion*, or *no selection* of the  
30  
31 154 quality indicators. A methodologist (TH) observed the panel meeting from the side-line and  
32  
33 155 intervened if methodological errors occurred. In the third consensus round (Delphi method),  
34  
35 156 all panel members only received the modified quality indicators and the quality indicators  
36  
37 157 which were still under discussion online in LimeSurvey for final consensus.

### 158 **Data analysis**

159 The experts were instructed to rate the quality indicators only on relevance, not on e.g.  
160 feasibility or reliability. The relevance was scored using a 9-point Likert scale ranging from 1  
161 *not relevant* to 9 *very relevant*. Consensus outcomes from the relevance ratings were  
162 calculated using the *IQ healthcare consensus tool*.<sup>38</sup> The consensus outcomes were based on  
163 the median score and the highest tertile, which resulted in labels: *selection*, *discussion*, or *no*  
164 *selection* (Table 1).<sup>38</sup> Quality indicators were labeled *selection* when the median score was  $\geq 8$

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3 165 on the 9-point Likert scale and  $\geq 70\%$  of the responses were in the highest tertile. The label  
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5 166 *discussion* was given as a result of three possible outcomes, 1) the median score was  $\geq 8$   
6  
7  
8 167 though less than 70% of the responses were in the highest tertile, 2) the median score was  
9  
10 168  $< 8$  though more than 70% of the responses were in the highest tertile, or 3) 30% of the  
11  
12  
13 169 responses were in the lowest and highest tertile. An indicator was labeled *no selection* when  
14  
15 170 the median was  $\leq 7$  and less than 70% of the responses were in the highest tertile.

171 *Table 1. Labels corresponding to the consensus outcomes following different quantitative*  
172 *relevance ratings of experts in the consensus rounds using the IQ healthcare consensus tool.*

	$\geq 70\%$ in the highest tertile	$\geq 30\%$ in the lowest tertile, and $\geq 30\%$ in the highest tertile	$< 70\%$ in the highest tertile
<b>Median <math>\leq 3</math></b>	Discussion	Discussion	No selection
<b>Median <math>4 \leq 7</math></b>	Discussion	Discussion	No selection
<b>Median <math>\geq 8</math></b>	Selection	Discussion	Discussion

173  
174 In the second consensus round (panel meeting), the panel members received information on  
175 all first-round outcomes with corresponding labels per quality indicator. The panel members  
176 voted yes or no for final *selection*, *discussion*, or *no selection* and consensus meant that at  
177 least 75% of the members voted for one final outcome. Where needed, the quality  
178 indicators were modified to improve the concise formulation. If modification(s) were  
179 suggested, the quality indicators were reformulated and rated (online and anonymous) for a  
180 second time by the panel members. The quality indicators needing further discussion were  
181 modified and rated by the panel members in the third online consensus round. After the  
182 third consensus round, only quality indicators which were labeled *selection* were included in  
183 the longlist with quality indicators. Ultimately, all selected quality indicators were charted by

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3 184 domain and translated into the English language with a standardized forward-backward by  
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5 185 the Language Centre of the HAN university of applied sciences, Nijmegen, the Netherlands.  
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9 **186 Patient and public involvement**

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12 187 No patients or public were involved in the design and conceptualization of this study.  
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For peer review only

## 188 **RESULTS**

### 189 **Literature search**

190 The systematic literature search retrieved a total of 1,556 studies, including 8 studies  
191 through searching the grey literature (Supplementary Table A2, Supplementary Figure A1).  
192 Full-text articles of 53 studies were assessed for eligibility, ultimately resulting in the  
193 inclusion of 17 articles.<sup>1-3 6 19-21 39-48</sup> Data extraction resulted in the identification of 29 unique  
194 indicators and 5 topics related to hospitalized adults of all ages with (or at risk of) low  
195 physical activity during hospital stay for a first draft longlist with quality indicators.

### 196 **Extra survey**

197 The 29 indicators and 5 topics were translated into the Dutch language and surveyed  
198 amongst 296 healthcare professionals. Eighteen nurses and 1 physical therapist responded  
199 and they suggested 20 additional topics. Twenty-five topics were reformulated and  
200 converted into indicators, ultimately resulting in 54 unique indicators in the second draft  
201 longlist with quality indicators (Supplementary Table A3).

### 202 **Consensus rounds**

203 Consensus round 1 – Twenty-eight experts were invited to participate in the first online  
204 Delphi round. Ultimately, 14 experts responded: 8 physical therapists, 4 nurses and 2  
205 managers. A total of 22 indicators were labeled *selection*, 12 indicators *discussion*, and 20  
206 indicators *no selection* as a result of the first round. A detailed overview of ratings and  
207 selections is provided in Supplementary Table A4.

208 Consensus round 2 – The panel meeting lasted three hours with a total of 5 panel members:  
209 4 physical therapists and 1 nurse. At the start, the moderator asked to discuss two key issues

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3 210 which were identified in the first Delphi round. First, the concept of physical activity during  
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5 211 hospital stay was discussed and defined for the panel meeting as “*an active transfer of a*  
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7 212 *body(part) by a hospitalized patient*”. This did not include exercises or a transfer of a  
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9 213 body(part) using a machine or object such as a standing aid or hospital bed. Second, the  
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11 214 physical activity plan was defined as “*an object in which physical activity should be reported,*  
12  
13 215 *tailored at individual patients’ needs, with a specific structure stating personal goals,*  
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15 216 *frequency, intensity, time, and type of physical activity. Besides, the amount of support*  
16  
17 217 *needed for mobilization should be described, for example, the need for a walking aid*”. Of all  
18  
19 218 22 indicators with the label *selection*, the panel members voted consensus for *selection* of 15  
20  
21 219 indicators, *discussion* of 5 indicators, and *no selection* of 2 indicators. Of all 12 indicators  
22  
23 220 with the label *discussion*, the panel members voted consensus for *selection* of 5 indicators,  
24  
25 221 *discussion* of 1 indicator, and *no selection* of 6 indicators. Of all 20 indicators with the label  
26  
27 222 *no selection*, the panel members voted consensus for *discussion* of 1 indicator and *no*  
28  
29 223 *selection* of 19 indicators. As a result of the second consensus round, 20 indicators were  
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31 224 *selected*, 7 indicators remained under *discussion* and were included in round 3, and 27  
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33 225 indicators were *not selected* (Supplementary Table A4).

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43 226 Consensus round 3 (Delphi) – In the third round, the same 5 panel members performed the  
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45 227 final rating of 7 remaining indicators resulting in the *selection* of 3 indicators, *discussion* of 3  
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47 228 indicators, and *no selection* of 1 indicator. The discussion remained for three indicators  
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49 229 (numbers 30, 32, 47) resulting in *no selection* due to a lack of consensus (Supplementary  
50  
51 230 Table A4). A flow diagram of the quality indicators selection is presented in Figure 1.

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55  
56 231 Please insert Figure 1 ‘Flow diagram showing the selection of healthcare quality indicators in  
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58 232 all phases of the study’ about here.  
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3 **233 Final longlist indicators**  
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6 234 The final longlist with quality indicators includes 23 indicators and are categorized into eight  
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8 235 domains (Table 2). The first domain, “*Aim*”, consists of one indicator that describes the  
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10 236 intention of achieving physical activity of patients within 48 hours after hospital admission.  
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12 237 The second domain, “*Patient-tailored physical activity plan*”, describes quality indicators  
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14 238 related to the use and follow-up of a patient-tailored physical activity plan that “*should be*  
15  
16 239 *reported, tailored at individual patients’ needs, with a specific structure stating personal*  
17  
18 240 *goals, frequency, intensity, time, and type of physical activity*”. The third domain, “*Evaluation*  
19  
20 241 *of physical activity*” includes quality indicators on timely documentation and assessment of  
21  
22 242 physical activity of patients by a healthcare professional. The fourth domain, “*Information on*  
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24 243 *physical activity*”, describes two quality indicators related to the provision of educational  
25  
26 244 information to both patients and close-relatives. The fifth domain includes quality indicators  
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28 245 on “*Equipment to stimulate physical activity*”. Within this domain, specific attention is given  
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30 246 to limited use of freedom and mobility limiting equipment such as a five-point fixation,  
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32 247 intravenous lines, and urinary catheters. The sixth domain describes two quality indicators in  
33  
34 248 the domain “*Policy regarding physical activity*” to evaluate institutional characteristics of the  
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36 249 hospital (ward) in which healthcare professionals work. The seventh domain describes three  
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38 250 qualitative quality indicators in which the “*Attitude related to physical activity*” of physicians  
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40 251 and nurses should be assessed. Finally, three quality indicators were labeled in domain eight  
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42 252 as “*Other*”.  
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253 Table 2. The final longlist with healthcare quality indicators for the care of patients with (or  
 254 at risk of) low physical activity during the hospital stay.

Domain	Healthcare quality indicators	
1. Aim	<b>Title:</b>	<b>1. Patients should be physically active within 48 hours after hospital admission (Outcome indicator)</b>
	<b>Numerator:</b>	The number of patients who were physically active within 48 hours after hospital admission.
	<b>Denominator:</b>	The number of patients. <i>Adapted from Arora et al.<sup>20</sup></i>
2. Patient-tailored physical activity plan	<b>Title:</b>	<b>2. Patients should have a physical activity plan (Process indicator)</b>
	<b>Numerator:</b>	The number of patients who had a physical activity plan within 48 hours after hospital admission.
	<b>Denominator:</b>	The number of patients. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
	<b>Title:</b>	<b>3. Patients in need for support during mobilization should have a physical activity plan (Process indicator)</b>
	<b>Numerator:</b>	The number of patients, who needed the support of (at least) one person for mobilization, with a physical activity plan.
	<b>Denominator:</b>	The number of patients who needed the support of at (least) one person for mobilization. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
	<b>Title:</b>	<b>4. Patients without need for support during mobilization should have a physical activity plan (Process indicator)</b>
	<b>Numerator:</b>	The number of patients, who did not need the support of a person for mobilization, with a physical activity plan. Patients who only use (a) walking aid(s) are considered independent.
	<b>Denominator:</b>	The number of patients who did not need the support of a person for mobilization. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
	<b>Title:</b>	<b>5. Patients should perform physical activities as described in their physical activity plan (Outcome indicator)</b>
	<b>Numerator:</b>	The number of patients who performed physical activities as described in their physical activity plan.
	<b>Denominator:</b>	The number of patients with a physical activity plan. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
3. Evaluation of physical activity	<b>Title:</b>	<b>6. Nurses or physical therapists should evaluate the preadmission physical ability (Process indicator)</b>

	<i>Numerator:</i>	The number of patients in which the preadmission physical functioning was evaluated within 24 hours after hospital admission.
	<i>Denominator:</i>	The number of patients. <i>Adapted from Brown et al.<sup>3</sup>, Pedersen et al.<sup>1</sup>, Lafont et al.<sup>41</sup>, Zisberg et al.<sup>6</sup>, Covinsky et al.<sup>39</sup>, Bail et al.<sup>19</sup>, Arora et al.<sup>42</sup>, Tropea et al.<sup>21</sup>, and Counsell et al.<sup>47</sup></i>
	<b>Title:</b>	<b>7. Nurses or physical therapists should evaluate the mobility (Process indicator)</b>
	<i>Numerator:</i>	The number of patients in which the mobility was evaluated within 24 hours after hospital admission.
	<i>Denominator:</i>	The number of patients. <i>Adapted from Covinsky et al.<sup>39</sup></i>
	<b>Title:</b>	<b>8. Patients should be evaluated after a fall incident (Process indicator)</b>
	<i>Numerator:</i>	The number of patients in which a fall incident was evaluated within 24 hours after the fall.
	<i>Denominator:</i>	The number of patients with a fall incident. <i>Adapted from Arora et al.<sup>20</sup> and Tropea et al.<sup>21</sup></i>
<b>4. Information on physical activity</b>	<b>Title:</b>	<b>9. Patients should be informed about the importance of physical activity (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who were informed about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients. <i>Adapted from Bail et al.<sup>19</sup></i>
	<b>Title:</b>	<b>10. Close-relatives of patients should be informed about the importance of physical activity (Process indicator)</b>
	<i>Numerator:</i>	The number of close-relatives of patients who were informed about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients with close-relatives. <i>Adapted from Bail et al.<sup>19</sup></i>
<b>5. Equipment to stimulate physical activity</b>	<b>Title:</b>	<b>11. Patients should have adequate walking aids (Structure indicator)</b>
	<i>Numerator:</i>	The number of patients who were advised to use (a) walking aid(s), with (an) adequate walking aid(s) available.
	<i>Denominator:</i>	The number of patients who were advised to use (a) walking aid(s). <i>Expert opinion</i>
	<b>Title:</b>	<b>12. Nurses should evaluate freedom limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of freedom-limiting equipment. Examples are five-point fixation, wheelchair tables, and wheelchair brakes.

	<i>Answer:</i>	The number of nurses. <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>40</sup></i>
	<b>Title:</b>	<b>13. Nurses should evaluate mobility limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of mobility-limiting equipment in patients. Examples are intravenous lines, urinary catheters, and oxygen tubes.
	<i>Answer:</i>	The number of nurses. <i>Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>40</sup></i>
	<b>Title:</b>	<b>14. The hospital (ward) should provide adequate resources to stimulate physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) provided physical activity stimulating resources. Examples are walking routes, treadmills, ergometers.
	<i>Answer:</i>	The number of hospital(s) ward(s). <i>Adapted from Bail et al.<sup>19</sup> and Covinsky et al.<sup>39</sup></i>
	<b>Title:</b>	<b>15. The hospital (ward) should have orientation promoting resources (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) provided orientation stimulating resources. Examples are maps, direction signs, banners with route information
	<i>Answer:</i>	The number of hospital(s) ward(s). <i>Adapted from Bail et al.<sup>19</sup> and Covinsky et al.<sup>39</sup></i>
<b>6. Policy regarding physical activity</b>	<b>Title:</b>	<b>16. The hospital (ward) should have the policy to improve the physical activity of patients (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) policy was to inform patients to be physically active during the hospital stay.
	<i>Answer:</i>	The number of hospital(s) ward(s). <i>Expert opinion</i>
	<b>Title:</b>	<b>17. The hospital (ward) should have the policy to inform close-relatives about physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital (ward) policy was to inform close-relatives of patients about the importance of physical activity during the hospital stay.
	<i>Answer:</i>	The number of hospital(s) ward(s). <i>Expert opinion</i>
<b>7. Attitude related to physical activity</b>	<b>Title:</b>	<b>18. Physicians should stimulate the physical activity of patients (Qualitative indicator)</b>
	<i>Numerator:</i>	The number of physicians who had a stimulating attitude towards the physical activity of patients during the hospital stay
	<i>Denominator:</i>	The number of physicians.

Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>40</sup>

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**Title:** **19. Nurses should stimulate the physical activity of patients (Qualitative indicator)**

**Numerator:** The number of nurses who had a stimulating attitude towards the physical activity of patients during the hospital stay.

**Denominator:** The number of nurses.

Adapted from Inouye et al.<sup>44</sup> and Sourd et al.<sup>40</sup>

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**Title:** **20. Nurses should stimulate independent functioning in daily activities of patients (Qualitative indicator)**

**Numerator:** The number of nurses who had a stimulating attitude towards independent physical functioning in daily activities of patients during the hospital stay.

**Denominator:** The number of nurses.

Adapted from Sourd et al.<sup>40</sup>, Pedersen et al.<sup>1</sup>, and Brown et al.<sup>3</sup>

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**8. Other**

**Title:** **21. Patients should receive support for mobilization (Process indicator)**

**Numerator:** The number of patients who received the support of (at least) one person for mobilization.

**Denominator:** The number of patients who needed the support of (at least) one person for mobilization.

Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup>

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**Title:** **22. Patients should have an acceptable degree of pain (Outcome indicator)**

**Numerator:** The number of patients who scored *pain at rest* and *pain during physical activities* with a Numeric Pain Rating Scale  $\leq 4$ .

**Denominator:** The number of patients.

Adapted from Sourd et al.<sup>40</sup>, Covinsky et al.<sup>39</sup>, and Arora et al.<sup>42</sup>

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**Title:** **23. Nurses should have followed education related to physical activity of patients (Structure indicator)**

**Numerator:** The number of nurses who followed education concerning the importance of physical activity of patients during the hospital stay.

**Denominator:** The number of patients.

Adapted from Bail et al.<sup>19</sup>

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3 256 **DISCUSSION**  
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5 257 The current study presents the development of a longlist with quantitative and qualitative  
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7 258 healthcare quality indicators for the healthcare of hospitalized adults of all ages with (or at  
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10 259 risk of) low physical activity during the hospital stay. A multidisciplinary expert panel agreed  
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12 260 on a list of 23 quality indicators with important domains such as an aim, patient-tailored  
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14 261 physical activity plan, evaluation of physical activity, information on physical activity,  
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16 262 equipment to stimulate physical activity, policy regarding physical activity, and attitude  
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18 263 related to physical activity. The quality indicators involve several stakeholders such as  
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20 264 patients, close-relatives, and healthcare professionals (i.e. physical therapists, nurses, and  
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22 265 physicians), which is consistent with the multi-factorial nature of low physical activity of  
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24 266 patients during the hospital stay.<sup>39</sup>  
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30 267 Reviewing current literature related to indicator development in secondary healthcare,  
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32 268 shows several studies reporting on physical activity of the elderly.<sup>19-21</sup> In contrast to our  
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34 269 study, none of these aimed to evaluate physical activity in hospitalized adults of all ages  
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36 270 during the hospital stay. Bail et al.<sup>19</sup> performed a literature review and constructed a  
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38 271 theoretical framework called 'Failure to maintain'. This study suggested quality indicators on  
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40 272 physical environment factors and process factors (treatment and regimes that may affect  
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42 273 the patient) to increase physical activity in complex older patients and ultimately decrease  
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44 274 the incidence of urinary tract infections, pneumonia, delirium, and pressure injuries. Arora et  
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46 275 al.<sup>20</sup> also performed a literature review for the general medical care of hospitalized  
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48 276 vulnerable elderly. Out of thirty reported quality indicators, only two related to physical  
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50 277 activity of patients during the hospital stay: mobilization and inpatient fall evaluation. These  
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52 278 two domains are likely to be important, although only two quality indicators do not  
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54 279 completely address the complex issue of low physical activity in patients during the hospital  
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3 280 stay.<sup>10</sup> Tropea et al.<sup>21</sup> performed a Delphi study with anonymous voting rounds and a panel  
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5 281 meeting similar to the current study, ultimately resulting in a set of quality indicators for  
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8 282 healthcare in older hospitalized patients. The set exists of three quality indicator domains  
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10 283 related to physical activity in patients during the hospital stay with five relevant quality  
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13 284 indicators: inpatient fall evaluation, fall-related injuries including fractures, pressure ulcer  
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15 285 risk assessment, discharge assessment, and assessment of physical function.

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18 286 Interestingly, the current study found two quality indicators with a focus on hospital (ward)  
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20 287 policy. In line with the Medical Research Council recommendations, quality improvement  
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22 288 studies which aim to improve physical activity in hospitalized adults of all ages should  
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24 289 include the perspective of local hospital policy in their study development and process  
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26 290 evaluation.<sup>49</sup> Furthermore, qualitative quality indicators were described to evaluate the  
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28 291 attitudes of healthcare professionals related to physical activity. Attitudes are often hard to  
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30 292 measure and therefore underexposed in other studies,<sup>25</sup> despite the knowledge that  
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32 293 attitudes of different stakeholders play an important role in healthcare quality  
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34 294 improvement.<sup>50</sup> With low physical activity during hospital stay being a multi-factorial issue in  
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36 295 hospitalized adults of all ages, the current study provides crucial knowledge to evaluate  
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38 296 healthcare for hospitalized adults of all ages (with or) at risk of low physical activity during  
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40 297 the hospital stay.

#### 48 298 **Strengths and limitations**

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51 299 The current study has several strengths. First, all methods as suggested by the modified  
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53 300 RAND/UCLA are followed in detail. The use of a thorough systematic review with duplicate  
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55 301 study selection, an extra survey in healthcare professionals, and consensus rounds with a  
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57 302 panel meeting is considered as a very rigorous quality indicators development procedure.<sup>51</sup>  
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3 303 Second, the panel meeting has been moderated by an internationally experienced  
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5 304 moderator (PW) which contributed to an efficient and systematic discussion of all quality  
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11 306 There are some limitations to the current study that need to be discussed. First, only five  
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13 307 panel members participated in the panel meeting which is lower than the preferred seven to  
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16 308 fifteen members within the RAND/UCLA method.<sup>29</sup> Despite the reduced diversity of  
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18 309 representation, the smaller group size was found to stimulate the involvement of every  
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21 310 panel member in the group discussion. Second, two items of the AGREE II were not met.<sup>30</sup>  
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23 311 The quality indicators were not submitted to external review, and stakeholders such as  
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25 312 patients, managers, and healthcare insurers were insufficiently included in the process of  
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28 313 quality indicators development. However, the limited external review and stakeholder  
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31 314 involvement could be adequately addressed in future research.

### 32 33 34 315 **Recommendations for future research**

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37 316 As the next step of our quality improvement initiative, a multicenter study will be performed  
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39 317 to assess the acceptability, feasibility and reliability of the longlist with quality indicators for  
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42 318 the healthcare in hospitalized adults of all ages with (or at risk of) low physical activity during  
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44 319 the hospital stay. The longlist with quality indicators will be applied in practice to further  
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46 320 assess the acceptability to patients, healthcare professionals, and managers, as well as its  
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49 321 feasibility and reliability.<sup>52</sup> Future research will include a validation study following the  
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51 322 Delphi technique of Hasson et al.<sup>51</sup> in a team of national and international experts. This  
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54 323 would provide crucial information on the appropriateness of care and optimization of  
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56 324 patient outcomes. To improve feasibility in daily practice, it would be useful to select  
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59 325 approximately three or four key performance quality indicators from the current longlist.  
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3 326 Ultimately, a quality improvement study should use the key performance quality indicators  
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5 327 in daily healthcare and assess their effect on patient outcomes such as strength and  
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8 328 functional decline.  
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## 10 329 **Conclusions and Implications**

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14 330 The healthcare quality indicators developed within the current study form a rigorous basis to  
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16 331 evaluate healthcare for hospitalized adults of all ages with (or at risk of) low physical activity  
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18 332 during the hospital stay. Improvements in healthcare related to low physical activity of  
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20 333 patients during the hospital stay are urgently needed, as the epidemic of low physical  
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22 334 activity already exists for decades with known, well-reported adverse effects. Quality  
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24 335 improvement projects to increase the physical activity of patients during the hospital stay  
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26 336 using currently developed healthcare quality indicators are promising, relevant, and will  
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28 337 improve outcomes in hospitalized adults of all ages.  
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## 52 345 **COMPETING INTERESTS**

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56 346 All authors declare that they have no competing interests.  
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16  
17 352 conceptualization. Data collection and analysis was handled by NK, SH, PW, and TH. SB provided  
18  
19 353 resources and contributed to project administration. PW and TH supervised all research activities. All  
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21 354 authors reviewed concept drafts of the manuscript and approved submission of the final draft.  
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24 355 **DATA AVAILABILITY**  
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27 356 No additional data are available. All data is provided in detail in the online Supplementary  
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29 357 File.  
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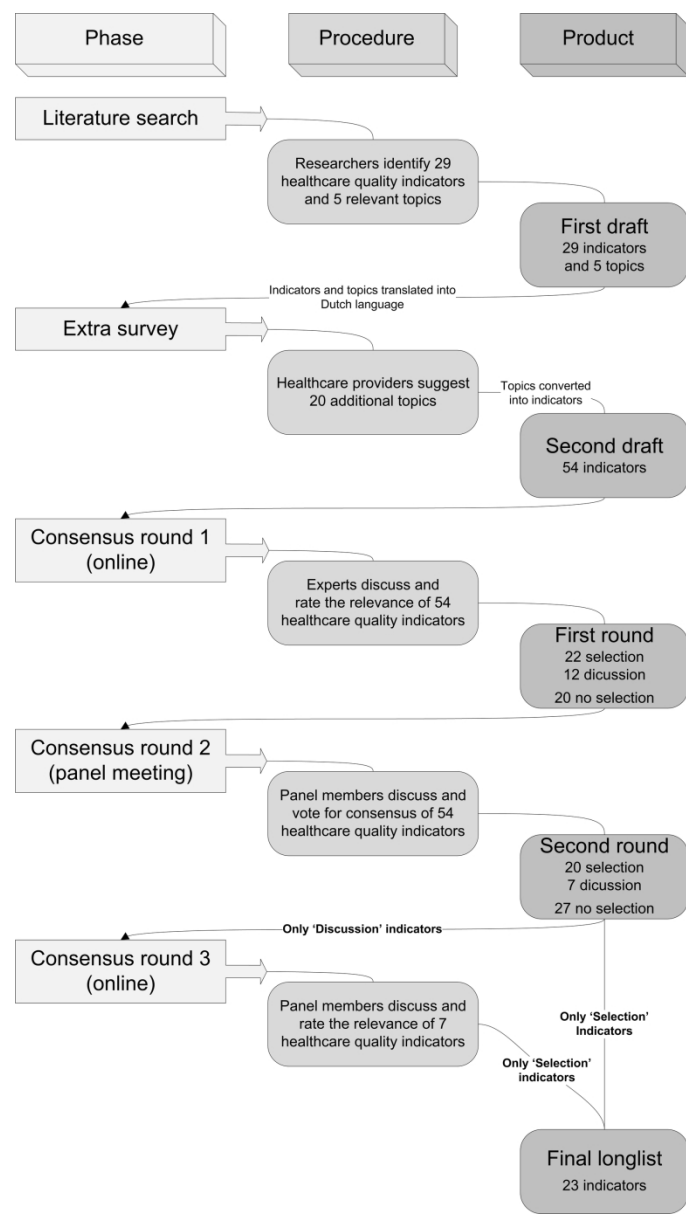


Figure 1. Flow diagram showing the selection of healthcare quality indicators in all phases of the study

160x284mm (300 x 300 DPI)

*Supplementary Table A1. Agree II quality indicator tool: Quality items and followed procedures for the development of healthcare quality indicators for the care of patients with (or at risk of) low physical activity during hospital stay. Adapted from Peter et al.<sup>[55]</sup>*

<b>Domain 1. Scope and purpose</b>	
The overall objectives of the quality indicator development initiative are specifically described.	The purpose of this quality indicators development was to assess the quality of care for patients with (or at risk of) low physical activity during hospital stay.
The population to whom the indicators are meant to apply is specifically described.	Adult hospitalized adults of all ages during hospital stay, with specific attention for patients with (or at risk of) low physical activity.
<b>Domain 2. Stakeholder involvement</b>	
The indicator development group includes individuals from relevant professional groups in line with the overall objective.	First, an acknowledged group of experts in physical activity of patients during hospital stay was contacted. From this group with healthcare providers, researchers, innovators, and implementation experts, a multidisciplinary expert panel was formed.
The target users of the indicators are clearly defined.	The target users of the quality indicators are physical therapists and nurses working in hospital care, treating patients with low physical activity during hospital stay.
<b>Domain 3. Rigour development</b>	
Systematic methods were used to search for evidence.	Evidence was based on a systematic literature search conducted in CINAHL, MEDLINE, and EMBASE. Details are provided in Supplementary Table A2 and Supplementary Figure A1.
The criteria for selecting the indicators are clearly described.	A RAND/UCLA-modified Delphi method was used for the selection of quality indicators. The <i>IQ healthcare consensus tool</i> was used to calculate consensus and provide information on selection, discussion or no selection according to pre-defined cut-off values.
The methods for formulating the indicators are clearly described.	Formulation of the quality indicators was done by the researchers (NK, SH) and checked by a third researcher (TH). The formulation was subsequently discussed by all healthcare providers and experts participating in this study before the second draft of the longlist with quality indicators. The expert panel commented on the formulation of all quality indicators before discussing indicator selection and the final draft of the longlist with quality indicators.
There was a predefined quantitative process for	A numeric rating scale from 1 (completely irrelevant) to 9 (extremely relevant) was



indicator selection.	used for scoring by the expert panel. Details for quantitative quality indicators selection are provided in Supplementary Table 2.
An explicit link between the indicators and supporting evidence is provided.	For each quality indicator, relevant studies were provided in summary and full-text. If no relevant evidence was available, it was stated that the quality indicator was based on expert opinion.
The indicators have been externally reviewed by experts/end-users prior to publication.	An external review was not conducted. A subsequent study will be conducted to test the feasibility, validity, and implementation of the quality indicators suggested in the final draft longlist with quality indicators.
A procedure for updating the indicators is provided and/or the indicator set has been updated.	The quality indicators will be updated every five years in collaboration with the national professional association for hospital physical therapy.
<b>Domain 4. Clarity of presentation</b>	
The indicators are specific and unambiguous.	For each quality indicator, a numerator and denominator were formulated to quantify the indicator, so that they are suitable for assessing the quality of care.
<b>Domain 5. Applicability</b>	
The indicators are supported with tools for use	Tools suggested for usage were electronic medical records, direct observations using behavioral mapping, and interviews.
The potential organizational barriers to applying the indicators have been discussed.	Potential organizational barriers were suggested such as the need to include more stakeholders (i.e. patients, health insurers), and the degree in which all quality indicators could be measured validly. Those barriers will be handled within the subsequent feasibility, validity, and implementation study.
The indicator development initiative is editorially independent from the funding body.	This research was conducted without any funding.
Comparing interests of indicator development group members have been recorded and addressed.	All authors declared that there were no conflicts of interest.
<b>Domain 6. 'Rate the overall quality of this initiative'</b>	Not applicable to quality indicators development.

*AGREE, Appraisal of Guidelines for Research and Evaluation; RAND/UCLA, Research and Development/University of California, Los Angeles*

Supplementary Table A2. Literature search details.

PubMed:

**Domain:**

(Inpatients[MeSH] OR Hospitalization[MeSH] OR "Adolescent, Hospitalized"[MeSH] OR "Child, Hospitalized"[MeSH] OR inpatient\*[tiab] OR hospitalized[tiab] OR hospitalization\*[tiab] OR hospitalised OR hospitalisation\*[tiab] OR hospital[tiab])

**Determinant:**

Early Ambulation[MeSH] OR Exercise[MeSH] OR Iatrogenic Disease[MeSH] OR Locomotion[MeSH] OR Motor Activity[MeSH] OR Muscle Fatigue[MeSH] OR Muscle Strength[MeSH] OR Physical Endurance[MeSH] OR Physical Exertion[MeSH] OR Physical Fitness[MeSH] OR Physical Therapy Modalities[MeSH] OR Posture[MeSH] OR Sedentary lifestyle[MeSH] OR Self Care[MeSH] OR "Mobility Limitation"[MeSH] OR Ambulation[tiab] OR Exercis\*[tiab] OR Fitness[tiab] OR Hospital Acquired Condition\*[tiab] OR Iatrogenic disabilit\*[tiab] OR Iatrogenic Disease\*[tiab] OR Iatrogenic disorder\*[tiab] OR Immobil\*[tiab] OR Locomot\*[tiab] OR mobil\*[tiab] OR motor activity[tiab] OR Muscle Fatigue[tiab] OR Muscle Strength[tiab] OR Muscular Fatigue[tiab] OR Physical activ\*[tiab] OR Physical Effort\*[tiab] OR Physical Endurance\*[tiab] OR Physical Exertion\*[tiab] OR Physical inactivity[tiab] OR Physical therap\*[tiab] OR Physiotherap\*[tiab] OR Posture\*[tiab] OR Seated Position\*[tiab] OR Sedentary behavior[tiab] OR Sedentary behaviour[tiab] OR Sedentary lifestyle[tiab] OR Self Care[tiab] OR Self Management[tiab] OR Sitting Position\*[tiab] OR Standing Position\*[tiab] OR stepping[tiab] OR hospital associated disorder\*[tiab]

**Outcome:**

"Quality indicators, Health Care"[MeSH] OR Healthcare Quality indicator\*[tiab] OR Health care Quality indicator\*[tiab] OR Healthcare Global Trigger Tool\*[tiab] OR Health care Global Trigger Tool\*[tiab] OR structure indicator\*[tiab] OR process indicator\*[tiab] OR performance

indicator\*[tiab] OR Health indicator\*[tiab] OR health status indicator\*[tiab] OR qualitative indicator\*[tiab] OR quantitative indicator\*[tiab]

EMBASE:

**Domain**

'hospital patient'/exp OR 'hospitalization'/exp OR (inpatient\* OR hospitalized OR hospitalization\* OR hospitalised OR hospitalisation\* OR hospital):ti,ab,kw

**Determinant**

'mobilization'/exp OR 'exercise'/exp OR 'endurance'/exp OR 'physical activity'/exp OR 'physical capacity'/exp OR 'physical inactivity'/exp OR 'iatrogenic disease'/exp OR 'patient mobility'/exp OR 'physical mobility'/exp OR 'locomotion'/exp OR 'muscle strength'/exp OR 'muscle fatigue'/exp OR 'fitness'/exp OR 'sedentary behavior'/exp OR 'sedentary lifestyle'/exp OR 'cardiorespiratory fitness'/exp OR 'physiotherapy'/exp OR 'body position'/exp OR 'self care'/exp OR 'walking difficulty'/exp OR 'stepping'/exp OR 'immobility'/exp OR Ambulation:ti,ab,kw OR Exercis\*:ti,ab,kw OR Fitness:ti,ab,kw OR ('Hospital Acquired' NEXT/1 Condition\*):ti,ab,kw OR (Iatrogenic NEXT/1 disabilit\*):ti,ab,kw OR (Iatrogenic NEXT/1 Disease\*):ti,ab,kw OR (Iatrogenic NEXT/1 disorder\*):ti,ab,kw OR Immobil\*:ti,ab,kw OR Locomot\*:ti,ab,kw OR mobil\*:ti,ab,kw OR 'motor activity':ti,ab,kw OR 'Muscle Fatigue':ti,ab,kw OR 'Muscle Strength':ti,ab,kw OR 'Muscular Fatigue':ti,ab,kw OR (Physical NEXT/1 activ\*):ti,ab,kw OR (Physical NEXT/1 Effort\*):ti,ab,kw OR (Physical NEXT/1 Endurance\*):ti,ab,kw OR (Physical NEXT/1 Exertion\*):ti,ab,kw OR 'Physical inactivity':ti,ab,kw OR (Physical NEXT/1 therap\*):ti,ab,kw OR Physiotherap\*:ti,ab,kw OR Posture\*:ti,ab,kw OR (Seated NEXT/1 Position\*):ti,ab,kw OR 'Sedentary behavior':ti,ab,kw OR 'Sedentary behaviour':ti,ab,kw OR 'Sedentary lifestyle':ti,ab,kw OR 'Self Care':ti,ab,kw OR 'Self Management':ti,ab,kw OR (Sitting NEXT/1 Position\*):ti,ab,kw OR (Standing NEXT/1 Position\*):ti,ab,kw OR stepping:ti,ab,kw OR 'hospital associated disorder':ti,ab,kw

**Outcome**

'health status indicator'/exp OR 'clinical indicator'/exp OR 'performance measurement system'/exp  
 OR 'public health systems research'/exp OR ('Healthcare Quality' NEXT/1 Indicator\*):ti,ab,kw OR  
 ('Health care Quality' NEXT/1 Indicator\*):ti,ab,kw OR ('Healthcare Global Trigger' NEXT/1  
 Tool\*):ti,ab,kw OR ('Health care Global Trigger' NEXT/1 Tool\*):ti,ab,kw OR (structure NEXT/1  
 indicator\*):ti,ab,kw OR (process NEXT/1 indicator\*):ti,ab,kw OR (performance NEXT/1  
 indicator\*):ti,ab,kw OR (Health NEXT/1 indicator\*):ti,ab,kw OR ('health status' NEXT/1  
 indicator\*):ti,ab,kw OR (qualitative NEXT/1 indicator\*):ti,ab,kw OR (quantitative NEXT/1  
 indicator\*):ti,ab,kw'

CINAHL

**Domain**

(MH "Inpatients+") OR (MH "Hospitalization+" ) OR TI inpatient\* OR AB inpatient\* OR TI  
 hospitalized OR AB hospitalized OR TI hospitalization\* OR AB hospitalization\* OR TI hospitalised  
 OR AB hospitalised OR TI hospitalisation\* OR AB hospitalisation\* OR TI hospital OR AB hospital

**Determinant**

(MH "Early Ambulation") OR (MH "Exercise+") OR (MH "Physical Therapy+") OR (MH "Iatrogenic  
 Disease") OR (MH "Physical Endurance+") OR (MH "Physical Fitness+") OR (MH "Body positions+")  
 OR (MH "Locomotion+") OR (MH "Muscle Fatigue") OR (MH "Muscle strength+") OR (MH "Life  
 Style, Sedentary") OR (MH "Self Care+") OR (MH "Physical Mobility") OR (MH "Physical Mobility  
 Impairment (Saba CCC)") OR (MH "Impaired Physical Mobility (NANDA)") OR (MH "Immobility") OR  
 (MH "Immobility Management (Iowa NIC)") OR (MH "physical activity") OR TI(Ambulation OR  
 Exercis\* OR Fitness OR "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic  
 Disease\*" OR "Iatrogenic disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR

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 4 Effort\*" OR "Physical Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical  
 5 therap\*" OR Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR  
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 7 "Sedentary behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting  
 8 Position\*" OR "Standing Position\*" OR stepping) OR AB (Ambulation OR Exercis\* OR Fitness OR  
 9  
 10 "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic Disease\*" OR "Iatrogenic  
 11 disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR "Muscle Fatigue" OR  
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 13 "Muscle Strength" OR "Muscular Fatigue" OR "Physical activ\*" OR "Physical Effort\*" OR "Physical  
 14 Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical therap\*" OR  
 15  
 16 Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR "Sedentary  
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 18 behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting Position\*" OR  
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 20 OR "Standing Position\*" OR stepping OR 'hospital associated disorder')

### Outcome

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 34 (MH "Health Status Indicators") OR (MH "Quality of Health Care") OR (MH "Performance  
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 36 Measurement Systems") OR TI("Healthcare Quality indicator\*" OR "Health care Quality indicator\*" OR  
 37  
 38 OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR "structure  
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 40 indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health indicator\*" OR  
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 42 "health status indicator\*") OR AB("Healthcare Quality indicator\*" OR "Health care Quality  
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 44 indicator\*" OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR  
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 46 "structure indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health  
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 48 indicator\*" OR "health status indicator\*" OR "qualitative NEXT/1 indicator\*" OR "quantitative  
 49  
 50 NEXT/1 indicator\*")

Supplementary Table A3. The *second draft with 54* healthcare quality indicators for the care of patients with (or at risk of) low physical activity during the hospital stay: Dutch version.

<b>Indicator 1:</b>	<b>Klinische patiënten die zelfstandig kunnen lopen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die zelfstandig lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen, waarbij een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen.
<b>Indicator 2:</b>	<b>Dagelijkse loopmomenten van klinische patiënten die zelfstandig kunnen lopen, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Patiënten lopen dagelijks zelfstandig, zoals beschreven in het activiteitenplan.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten dat dagelijks zelfstandig loopt, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, dat in staat is om zelfstandig te lopen.
<b>Indicator 3:</b>	<b>Klinische patiënten die ondersteuning nodig hebben met lopen van één of meerdere personen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die ondersteuning nodig hebben bij het lopen van een persoon, bij wie een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan die lopen met ondersteuning van een persoon.
<b>Indicator 4:</b>	<b>Dagelijkse loopmomenten van klinische patiënten die ondersteuning nodig hebben met lopen van een persoon, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor klinische patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die dagelijks lopen met ondersteuning van een persoon, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, die lopen met ondersteuning van een persoon.
<b>Indicator 5:</b>	<b>Klinische patiënten met fysiotherapeutische begeleiding.</b>
<b>Thema:</b>	Standaard consult fysiotherapie.
<b>Item:</b>	De klinische patiënt ontvangt fysiotherapie begeleiding.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling met fysiotherapie begeleiding.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling.
<b>Indicator 6:</b>	<b>Percentage klinische patiënten met een activiteitenplan binnen 48 uur na opname.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Patiënten hebben binnen 48 uur na opname een activiteitenplan.

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3	<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een activiteitenplan binnen 48 uur na
4		opname.
5	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
6		
7	<b><u>Indicator 7:</u></b>	<b>Klinische patiënten, die voor opname mobiel waren, die worden gemobiliseerd binnen</b>
8		<b>48 uur post operatief.</b>
9	<b>Thema:</b>	Mobiliseren.
10	<b>Item:</b>	Tijdig mobiliseren.
11	<b>Teller:</b>	Het aantal klinische patiënten per afdeling die binnen 48 uur postoperatief mobiliseren.
12	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling na een operatie.
13		
14	<b><u>Indicator 8:</u></b>	<b>Klinische patiënten met lichamelijke beperking, met een oefenprogramma.</b>
15	<b>Thema:</b>	Een passend oefenprogramma.
16	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
17		ondersteuning van de armleningen om op te staan vanuit de stoel), of
18		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
19		oefenprogramma worden aangeboden.
20	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in lichamenlijk
21		functioneren per afdeling, met een oefenprogramma.
22	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in lichamenlijk
23		functioneren.
24		
25	<b><u>Indicator 9:</u></b>	<b>Klinische patiënten met een beperking in dagelijkse activiteiten, met een</b>
26		<b>oefenprogramma.</b>
27	<b>Thema:</b>	Een passend oefenprogramma.
28	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
29		ondersteuning van de armleningen om op te staan vanuit de stoel), of
30		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
31		oefenprogramma worden aangeboden.
32	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in dagelijkse activiteiten
33		per afdeling, met een oefenprogramma.
34	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in dagelijkse
35		activiteiten.
36		
37	<b><u>Indicator 10:</u></b>	<b>Klinische patiënten dat in staat is zonder hulp te bewegen, bij ontslag.</b>
38	<b>Thema:</b>	Verandering in mobiliteit.
39	<b>Item:</b>	Percentage van patiënten die bij ontslag in staat zijn om zelfstandig te verplaatsen,
40		eventueel met behulp van een rolstoel, van de patiënten die immobiel of afhankelijk van
41		een rolstoel waren bij opname.
42	<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
43		afhankelijk van rolstoel waren, en bij ontslag zelfstandig te verplaatsen, eventueel met
44		behulp van een rolstoel.
45	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
46		afhankelijk van rolstoel waren.
47		
48	<b><u>Indicator 11:</u></b>	<b>Klinische patiënten dat in staat is zonder hulp te lopen, bij ontslag.</b>
49	<b>Thema:</b>	Patiëntenmobiliteit.
50	<b>Item:</b>	Het inzichtelijk krijgen van het percentage van klinische patiënten die in staat zijn
51		zelfstandig te lopen bij ontslag, eventueel met loophulpmiddel, van de patiënten die
52		immobiel waren of afhankelijk van een rolstoel bij opname.
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**Teller:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of afhankelijk van rolstoel waren, en bij ontslag zelfstandig lopen, eventueel met behulp van een loophulpmiddel.

**Noemer:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of afhankelijk van rolstoel waren.

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**Indicator 12: Artsen die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De artsen stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal artsen per afdeling.

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**Indicator 13: Verpleegkundigen die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De verpleegkundigen stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal verpleegkundigen per afdeling.

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**Indicator 14: Fysiotherapeuten die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De fysiotherapeuten stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal fysiotherapeuten per afdeling.

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**Indicator 15: Artsen die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.**

**Thema:** Stimuleren lopen.

**Item:** De artsen stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.

**Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Noemer:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

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**Indicator 16: Verpleegkundigen die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.**

**Thema:** Stimuleren lopen.

**Item:** De verpleegkundigen stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.

**Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Noemer:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten



stimuleren in het zelfstandig lopen van het bed naar de stoel.

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<b><i>Indicator 17:</i></b>	<b>Fysiotherapeuten die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.</b>
<b>Thema:</b>	Stimuleren lopen.
<b>Item:</b>	De fysiotherapeuten stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.
<b>Teller:</b>	Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.
<b>Noemer:</b>	Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

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<b><i>Indicator 18:</i></b>	<b>Klinische patiënten met vrijheidsbeperkende middelen.</b>
<b>Thema:</b>	Immobilisatie.
<b>Item:</b>	Inventariseren van gebruik van vrijheidsbeperkende middelen voor het voorkomen van vallen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling waarbij vrijheidsbeperkende middelen zijn ingezet.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling.

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<b><i>Indicator 19:</i></b>	<b>Klinische patiënten met een valincident, waarbij het valincident binnen 24 uur wordt geëvalueerd.</b>
<b>Thema:</b>	Evaluatie vallen.
<b>Item:</b>	Er vindt een evaluatie plaats van een valincident binnen 24 uur. De evaluatie bestaat uit ten minste medicijngebruik en aan- of afwezigheid van (voortekenen van) ziekte.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een valincident, waarbij dit geëvalueerd is binnen 24 uur.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling met een valincident.

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<b><i>Indicator 20:</i></b>	<b>Klinische patiënten met documentatie van een valincident.</b>
<b>Thema:</b>	Documentatie vallen.
<b>Item:</b>	Er vindt documentatie plaats van een valincident, waarbij de potentiële oorzaken zijn beschreven.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een documentatie van een valincident.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling met een valincident.

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<b><i>Indicator 21:</i></b>	<b>Klinische patiënten met documentatie van preopname functioneren.</b>
<b>Thema:</b>	Preopname functioneren.
<b>Item:</b>	Er vindt documentatie plaats van het preopname functioneren. De documentatie betreft beschrijven van het valrisico, gebruik van rollator of stok en de onafhankelijkheid in het uitvoeren van algemeen dagelijkse levensverrichtingen voor opname.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling, waarbij het preopname functioneren is gedocumenteerd.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.

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<b><i>Indicator 22:</i></b>	<b>Klinische patiënten, bij wie tijdens opname een evaluatie van de mobiliteit plaatsvindt.</b>
<b>Thema:</b>	Evaluatie mobiliteit.
<b>Item:</b>	Bij opname in het ziekenhuis worden de volgende transfers geëvalueerd: van lig naar zit transfereren zonder hulp; uit bed komen en tot stand komen vanuit bed; een aantal passen lopen, en het gebruik maken van een stok of een rollator zo nodig.

<b>Teller:</b>	Het aantal klinische patiënten per afdeling waar bij opname een evaluatie van mobiliteit plaatsvindt.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
<b><u>Indicator 23:</u></b>	<b>Klinische patiënten met geïnformeerde familie.</b>
<b>Thema:</b>	Informeren familie.
<b>Item:</b>	De klinische patiënten en familie zijn geïnformeerd over het belang van bewegen.
<b>Teller:</b>	Het aantal klinische patiënten met familie per afdeling, die zijn geïnformeerd over het belang van bewegen.
<b>Noemer:</b>	Het aantal klinische patiënten met familie per afdeling.
<b><u>Indicator 24:</u></b>	<b>Klinische patiënten dat is geïnformeerd over hun zorgtraject.</b>
<b>Thema:</b>	Informeren patiënt.
<b>Item:</b>	Het zorgtraject met betrekking tot bewegen wordt samen met de klinische patiënt besproken. Een zorgtraject met betrekking tot bewegen bestaat onder andere uit het bespreken van het benodigde niveau van fysiek functioneren voor ontslag.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling, waar bij het zorgtraject met betrekking tot bewegen is besproken.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
<b><u>Indicator 25:</u></b>	<b>Artsen die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van artsen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal artsen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal artsen per afdeling.
<b><u>Indicator 26:</u></b>	<b>Verpleegkundigen die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van verpleegkundigen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal verpleegkundigen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal verpleegkundigen per afdeling.
<b><u>Indicator 27:</u></b>	<b>Fysiotherapeuten die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van fysiotherapeuten draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal fysiotherapeuten per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal fysiotherapeuten per afdeling.
<b><u>Indicator 28:</u></b>	<b>Klinische patiënten met bedrust zonder medische noodzaak.</b>
<b>Thema:</b>	Bedrust.
<b>Item:</b>	Bedrust zonder medische noodzaak is van belang bij de hoeveelheid bewegen voor de klinisch opgenomen patiënt.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling dat bedrust heeft voorgeschreven gekregen, zonder medische noodzaak.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.

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3	<b><i>Indicator 29:</i></b>	<b>Lager opgeleide zorgverleners op de afdeling.</b>
4	<b>Thema:</b>	Niveau van opleiding.
5	<b>Item:</b>	Lager opgeleide zorgmedewerkers geven een lagere prioriteit aan het mobiliseren van
6		patiënten dan hoger opgeleide zorg medewerkers.
7	<b>Teller:</b>	Het aantal lager opgeleide zorgverleners op de afdeling.
8	<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
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11	<b><i>Indicator 30:</i></b>	<b>Zorgverleners die aangeven dat werkdruk een beperkende factor is voor het</b>
12		<b>mobiliserende van klinische patiënten.</b>
13	<b>Thema:</b>	Werkdruk.
14	<b>Item:</b>	Werkdruk heeft een negatief effect op het structureel bewegen van patiënten.
15	<b>Teller:</b>	Het aantal zorgverleners op de afdeling, die aangeeft dat de eigen werkdruk een
16		beperkende factor is voor de optimale hoeveelheid beweging van patiënten.
17	<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
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20	<b><i>Indicator 31:</i></b>	<b>Klinische patiënten die ervaren te vroeg ontslagen te zijn.</b>
21	<b>Thema:</b>	Triagesysteem.
22	<b>Item:</b>	Met de invoering van het triagesysteem ligt er druk op het ontslaan van patiënten
23		minder op zelfstandig kunnen bewegen.
24	<b>Teller:</b>	Het aantal klinische patiënten dat wordt ontslagen, en ervaart dat ze te vroeg ontslagen
25		worden.
26	<b>Noemer:</b>	Het aantal klinische patiënten dat wordt ontslagen.
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29	<b><i>Indicator 32:</i></b>	<b>Klinische patiënten die worden beperkt in het uitvoeren van transfers door meubilair.</b>
30	<b>Thema:</b>	Meubels.
31	<b>Item:</b>	Het gebruik van hoge bedden met bedrekken en stoelen die moeilijk bereikbaar zijn is
32		van invloed op het bewegen van klinische patiënten.
33	<b>Teller:</b>	Het aantal opgenomen klinische patiënten, die beperkt worden in het zelfstandig
34		uitvoeren van transfers door hoge bedden, hoge stoelen, of het gebruik van bijvoorbeeld
35		bedrekken.
36	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten.
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39	<b><i>Indicator 33:</i></b>	<b>Klinische patiënten die de beschikking hebben over een geadviseerd loophulpmiddel.</b>
40	<b>Thema:</b>	Hulpmiddelen.
41	<b>Item:</b>	Er moeten voldoende loophulpmiddelen beschikbaar zijn om het bewegen van patiënten
42		mogelijk te maken.
43	<b>Teller:</b>	Het aantal klinische patiënten per afdeling die beschikking hebben over een geadviseerd
44		loophulpmiddel.
45	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling, dat geadviseerd wordt te lopen met een
46		loophulpmiddel.
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50	<b><i>Indicator 34:</i></b>	<b>Klinische patiënten die beschikking hebben over een relax stoel.</b>
51	<b>Thema:</b>	Hulpmiddelen.
52	<b>Item:</b>	Er moeten voldoende relaxstoelen beschikbaar zijn om het bewegen van patiënten
53		mogelijk te maken.
54	<b>Teller:</b>	Het aantal klinisch patiënten per afdeling die beschikking hebben over een relaxstoel.
55	<b>Noemer:</b>	Het aantal klinisch patiënten per afdeling.
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57	<b><i>Indicator 35:</i></b>	<b>Klinische patiënten die beschikking hebben over een bedfiets.</b>
58	<b>Thema:</b>	Hulpmiddelen.
59	<b>Item:</b>	Er moeten voldoende bedfietsen beschikbaar zijn om het bewegen van patiënten
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3 mogelijk te maken.  
4 **Teller:** Het aantal klinisch patiënten per afdeling met het advies gebruik te maken van de  
5 bedfiets, die beschikking hebben over een bedfiets.  
6  
7 **Noemer:** Het aantal klinisch patiënten per afdeling, dat geadviseerd wordt gebruik te maken van  
8 een bedfiets.  
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10 **Indicator 36: Artsen die geschoold zijn in het aanbieden van bewegzorg bij klinische patiënten.**

11 **Thema:** Scholing.  
12 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
13 patiënten voor alle artsen medewerkers/zorgverleners die werkzaam zijn op de afdeling.  
14 **Teller:** Het aantal artsen dat scholing heeft gevolgd met betrekking tot het aanbieden van  
15 bewegzorg bij klinische patiënten.  
16  
17 **Noemer:** Het aantal artsen dat op de afdeling werkt.  
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19 **Indicator 37: Verpleegkundigen die geschoold zijn het aanbieden van bewegzorg bij klinische  
20 patiënten.**

21 **Thema:** Scholing.  
22 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
23 patiënten voor alle verpleegkundigen die werkzaam zijn op de afdeling.  
24 **Teller:** Het aantal verpleegkundigen dat scholing heeft gevolgd met betrekking tot het  
25 aanbieden van bewegzorg bij patiënten.  
26  
27 **Noemer:** Het aantal verpleegkundigen dat op de afdeling werkt.  
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29 **Indicator 38: Fysiotherapeuten die geschoold zijn in het aanbieden van bewegzorg bij klinische  
30 patiënten.**

31 **Thema:** Scholing.  
32 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
33 patiënten voor alle fysiotherapeuten die werkzaam zijn op de afdeling.  
34 **Teller:** Het aantal fysiotherapeuten dat scholing heeft gevolgd met betrekking tot het  
35 aanbieden van bewegzorg bij patiënten.  
36  
37 **Noemer:** Het aantal fysiotherapeuten dat op de afdeling werkt.  
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39 **Indicator 39: Artsen die geloven beweeggedrag te stimuleren bij patiënten.**

40 **Thema:** Mindset artsen.  
41 **Item:** De mindset van artsen draagt bij aan het motiveren, stimuleren en initiëren van  
42 beweeggedrag bij patiënten.  
43 **Teller:** Het aantal artsen per afdeling, die geloven dat ze beweeggedrag stimuleren bij  
44 patiënten.  
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46 **Noemer:** Het aantal artsen per afdeling.  
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48 **Indicator 40: Verpleegkundigen die geloven beweeggedrag te stimuleren bij patiënten.**

49 **Thema:** Mindset verpleegkundigen.  
50 **Item:** De mindset van verpleegkundigen draagt bij aan het motiveren, stimuleren en initiëren  
51 van beweeggedrag bij patiënten.  
52 **Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze beweeggedrag stimuleren  
53 bij patiënten.  
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55 **Noemer:** Het aantal verpleegkundigen per afdeling.  
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57 **Indicator 41: Fysiotherapeuten die geloven beweeggedrag te stimuleren bij patiënten.**

58 **Thema:** Mindset fysiotherapeuten.  
59 **Item:** De mindset van fysiotherapeuten draagt bij aan het motiveren, stimuleren en initiëren  
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van beweggedrag bij patiënten.

**Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze beweggedrag stimuleren bij patiënten.

**Noemer:** Het aantal fysiotherapeuten per afdeling.

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***Indicator 42*** **Klinische patiënten die lopen met een vrijwilliger**

**Thema:** Vrijwilligers.

**Item:** Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met een vrijwilliger in het ziekenhuis.

**Teller:** Er is/zijn vrijwilliger(s) aanwezig op de afdeling die ondersteunen bij lopen.

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***Indicator 43*** **Klinische patiënten die lopen met familie.**

**Thema:** Familie.

**Item:** Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met familie in het ziekenhuis.

**Teller:** Er zijn familieleden aanwezig op de afdeling die ondersteunen bij lopen.

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***Indicator 44*** **Mobiliteit beperkende middelen worden dagelijks geëvalueerd.**

**Thema:** Evaluatie immobilisatie.

**Item:** Regelmatige evaluatie van de inzet van mobiliteit beperkende middelen bij klinische patiënten, zoals zuurstofslangen, blaas katheters en intraveneuze katheters.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van mobiliteit beperkende middelen bij klinische patiënten.

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***Indicator 45*** **Patiëntenmobiliteit is opgenomen in de normen van het ziekenhuis.**

**Thema:** Cultuur.

**Item:** De norm in het ziekenhuis is dat patiënten regelmatig lopen, als ze dat kunnen.

**Teller:** In de normen van het ziekenhuis staat beschreven dat er verwacht wordt dat patiënten regelmatig lopen als ze dat kunnen.

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***Indicator 46*** **Vrijheidsbeperkende middelen worden dagelijks geëvalueerd.**

**Thema:** Evaluatie immobilisatie.

**Item:** Er vindt regelmatig evaluatie plaats van de inzet van vrijheidsbeperkende middelen bij klinische patiënten, zoals buikband, vijf punt fixatie, rolstoelblad, rem van de rolstoel.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van vrijheidsbeperkende middelen bij klinische patiënten.

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***Indicator 47*** **Het ziekenhuis heeft een kritische houding ten aanzien van het inzetten van immobiliserende middelen bij valgevaarlijke patiënten.**

**Thema:** Cultuur.

**Item:** De norm van het ziekenhuis is een kritische houding te hebben ten aanzien van de inzet van immobiliserende middelen bij valgevaarlijke klinische patiënten.

**Teller:** In de normen van het ziekenhuis staat beschreven dat de inzet van immobiliserende middelen bij valgevaarlijke klinische patiënten kritisch wordt bekeken.

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***Indicator 48*** **De inzet van pijnstillende middelen wordt dagelijks geëvalueerd ten behoeve van het pijn vrij mobiliseren van de klinische patiënt.**

**Thema:** Evaluatie pijnmedicatie.

**Item:** Er vindt regelmatige evaluatie plaats van pijnmedicatie bij de klinische patiënt, ten behoeve van het bewegen.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats van de inzet van pijnstillende middelen bij klinische patiënten, ten behoeve van het bewegen.

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3	<b><u>Indicator 49</u></b>	<b>Het informeren van de familie van de klinische patiënt ten aanzien van het belang van</b>
4		<b>bewegen is een norm van het ziekenhuis.</b>
5	<b>Thema:</b>	Cultuur.
6	<b>Item:</b>	De norm van het ziekenhuis is het informeren van de familie van de klinische patiënt ten
7		aanzien van het belang van bewegen.
8	<b>Teller:</b>	In de normen van het ziekenhuis staat beschreven dat de familie van de klinische patiënt
9		geïnformeerd wordt over het belang van bewegen.
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12	<b><u>Indicator 50</u></b>	<b>Het aantal stappen dat een klinische patiënt loopt.</b>
13	<b>Thema:</b>	Bewegen.
14	<b>Item:</b>	De totale hoeveelheid stappen die een klinische patiënt per dag loopt.
15	<b>Teller:</b>	Het aantal stappen dat een klinisch opgenomen patiënt loopt per dag.
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17	<b><u>Indicator 51</u></b>	<b>De klinische patiënt kan zich goed oriënteren in het ziekenhuis.</b>
18	<b>Thema:</b>	Ziekenhuisomgeving.
19	<b>Item:</b>	De gebouwde ziekenhuisomgeving is van belang om desoriëntatie van de klinische
20		patiënt te voorkomen en mobilisatie te stimuleren.
21	<b>Teller:</b>	Er is gebruik gemaakt van oriënterende middelen, zoals looproutes en/of routewijzers,
22		ter ondersteuning van de oriëntatie van klinische patiënten.
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25	<b><u>Indicator 52</u></b>	<b>De klinische patiënt wordt gestimuleerd om te bewegen door de inrichting van de</b>
26		<b>afdeling.</b>
27	<b>Thema:</b>	Omgeving.
28	<b>Item:</b>	Aanwezigheid van foto's, kunst en/of ander beeldmateriaal om patiënten te stimuleren
29		om te bewegen.
30	<b>Teller:</b>	Is er gebruik gemaakt van foto's, kunst en/of ander beeldmateriaal op de wandelgangen
31		van de afdeling?
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34	<b><u>Indicator 53</u></b>	<b>De klinische patiënt heeft een beweegruijnte op de afdeling.</b>
35	<b>Thema:</b>	Omgeving.
36	<b>Item:</b>	Aanwezigheid van een beweegruijnte.
37	<b>Teller:</b>	Is er een beweegruijnte aanwezig op de afdeling?
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39	<b><u>Indicator 54</u></b>	<b>De klinische patiënt heeft zonlicht op de patiëntenkamer.</b>
40	<b>Thema:</b>	Omgeving.
41	<b>Item:</b>	Aanwezigheid van zonlicht op de patiëntenkamer.
42	<b>Teller:</b>	Is er zonlicht op de patiëntenkamer?
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Supplementary Table A4. Overview of ratings in the consensus rounds with the corresponding decision: selection, discussion, or no selection.

	First round		Second round		Third round	
<b>Theme: Exercise program and physical activity plan</b>	Median (%HT)	Decision	Median (%HT)	Decision	Median (%HT)	Decision
1. Patients without the need for support during mobilization should have a physical activity plan.	7 (79%)	D	8 (100%)	S		
2. Patients should receive support for mobilization.	8 (79%)	S				
3. Patients in need for support during mobilization should have a physical activity plan	8 (93%)	S	8 (60%)	D	8 (100%)	S
4. Patients should perform physical activities as described in their physical activity plan.	8 (86%)	S	8 (100%)	S		
6. Patients should be physically active within 48 hours after hospital admission.	8 (64%)	D	8 (100%)	S		
8. Patients with a physical disability should have an exercise program.	7 (71%)	D	6 (40%)	NS		

1  
2  
3 9. Patients who are dependent in 7 (64%) NS  
4  
5 activities of daily living should have  
6  
7 an exercise program.  
8  
9

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10 **Theme: Assistance during**

11  
12 **mobilization**

13  
14  
15  
16 5. Patients should walk with a 8 (64%) D 4 (20%) NS  
17  
18 physical therapist.  
19

20  
21 10. Patients should be independent in 7 (64%) NS  
22  
23 activities of daily living at discharge.  
24

25  
26 42. Patients should walk with 7 (64%) NS  
27  
28 volunteers.  
29

30  
31 43. Patients should walk with close- 8 (86%) S 7 (100%) D 7 (60%) NS  
32  
33 relatives.  
34

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35  
36 **Theme: Mobilizing**

37  
38  
39 7. Patients should be physically active 8 (86%) S 8 (80%) S  
40  
41 within 48 hours after hospital  
42  
43 admission.  
44  
45

46  
47 11. Patients should mobilize 7 (64%) NS  
48  
49 independently at discharge.  
50

51  
52 50. The number of steps of a patient 6 (43%) NS  
53  
54 during hospital stay per day.  
55

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56  
57 **Theme: Attitude**  
58  
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12. Physicians should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
13. Nurses should stimulate independent functioning in daily activities of patients.	8 (86%)	S	8 (80%)	S
14. Physical therapists should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
15. Physicians should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
16. Nurses should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	7 (57%)	NS		
17. Physical therapists should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
39. Physicians should stimulate physical activity of patients.	7 (71%)	D	8 (80%)	S

1  
2  
3 40. Nurses should stimulate physical 8 (86%) S 8 (80%) S  
4  
5 activity of patients.  
6  
7

8 41. Physical therapists should 7 (72%) D 6 (40%) NS  
9  
10 stimulate physical activity of patients.  
11  
12

13 **Theme: Use of restraints**  
14

15  
16 18. The number of patients with 7 (71%) D 6 (40%) NS  
17  
18 mobility limiting equipment.  
19  
20

21 44. Nurses should evaluate freedom 8 (71%) S 8 (100%) S  
22  
23 limiting equipment.  
24  
25

26 46. Nurses should evaluate mobility 8 (79%) S  
27  
28 limiting equipment.  
29  
30

31 47. The hospital (ward) should have a 8 (79%) S 8 (60%) D 7 (80%) D  
32  
33 policy to minimize the use of mobility  
34  
35 limiting equipment in patients at risk  
36  
37 of falling.  
38  
39  
40

41 48. Patients should have an 8 (79%) S 8 (60%) D 8 (80%) S  
42  
43 acceptable degree of pain.  
44  
45  
46

47 **Theme: Fall incident**  
48

49 19. Patients should be evaluated after 8 (71%) S  
50  
51 a fall incident.  
52  
53

54 20. The number of documented fall 8 (57%) D 5 (0%) NS  
55  
56 incidents.  
57  
58  
59  
60

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**Theme: Documentation**


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21. Nurses or physical therapists 8 (93%) S 8 (100%) S

should evaluate the preadmission

physical ability.

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22. Nurses or physical therapists 8 (79%) S 8 (100%) S

should evaluate the mobility.

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**Theme: Providing information**


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23. Close-relatives of patients should 7 (79%) D 8 (80%) S

be informed about the importance of

physical activity.

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24. Patients should be informed 8 (71%) S

about the importance of physical

activity.

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**Theme: Bed rest**


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25. Physicians should consider bed 6 (50%) NS

rest as an abnormal medical

procedure.

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26. Nurses should consider bed rest 6 (50%) NS

as an abnormal procedure.

---

27. Physical therapists should 6 (29%) NS

consider bed rest as an abnormal

procedure.

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1  
2  
3 28. The number of patients with bed 6 (50%) NS 7 (60%) NS  
4  
5 rest without medical urgency.  
6  
7

8 **Theme: Education**  
9

10  
11 29. The number of lower educated 2 (0%) NS  
12  
13 healthcare providers.  
14  
15

16 36. Physicians should have followed 7 (71%) D 7 (60%) NS  
17  
18 education related to physical activity  
19  
20 of patients.  
21  
22

23  
24 37. Nurses should have followed 7 (86%) D 8 (80%) S  
25  
26 education related to physical activity  
27  
28 of patients.  
29  
30

31 38. Physical therapists should have 7 (64%) NS  
32  
33 followed education related to  
34  
35 physical activity of patients.  
36  
37  
38

39 **Theme: Work pressure**  
40

41 30. Nurses should be aware of work 8 (79%) S 7 (100%) D 7 (100%) D  
42  
43 pressure being a limiting factor for  
44  
45 physical activity in patients.  
46  
47  
48

49 31. The number of patients who 5 (29%) NS  
50  
51 experience to be discharged too  
52  
53 early.  
54  
55

56 **Theme: Environment**  
57  
58  
59  
60

32. Hospital rooms should be equipped with adequate furniture to improve physical activity.	7 (71%)	D	7 (80%)	D	7 (80%)	D
51. The hospital (ward) has orientation promoting resources.	7 (57%)	NS	7 (100%)	D	8 (100%)	S
52. The hospital (ward) provides adequate resources to stimulate physical activity.	8 (86%)	S	8 (100%)	S		
53. Patients should have access to a movement room.	8 (79%)	S	7 (60%)	NS		
54. Patients should have sunlight in their hospital room.	7 (64%)	NS				
<b>Theme: Aids for mobilization</b>						
33. Patients should have adequate walking aids.	8 (86%)	S				
34. Patients should have comfortable chairs.	8 (79%)	S	6 (40%)	NS		
35. Patients should have access to ergometers.	4 (28%)	NS				
<b>Theme: Culture</b>						
45. The hospital (ward) should have a policy to improve physical activity of	8 (86%)	S	8 (100%)	S		

1  
2  
3 patients.  
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6 49. The hospital (ward) should have a 8 (79%) S 8 (80%) S  
7

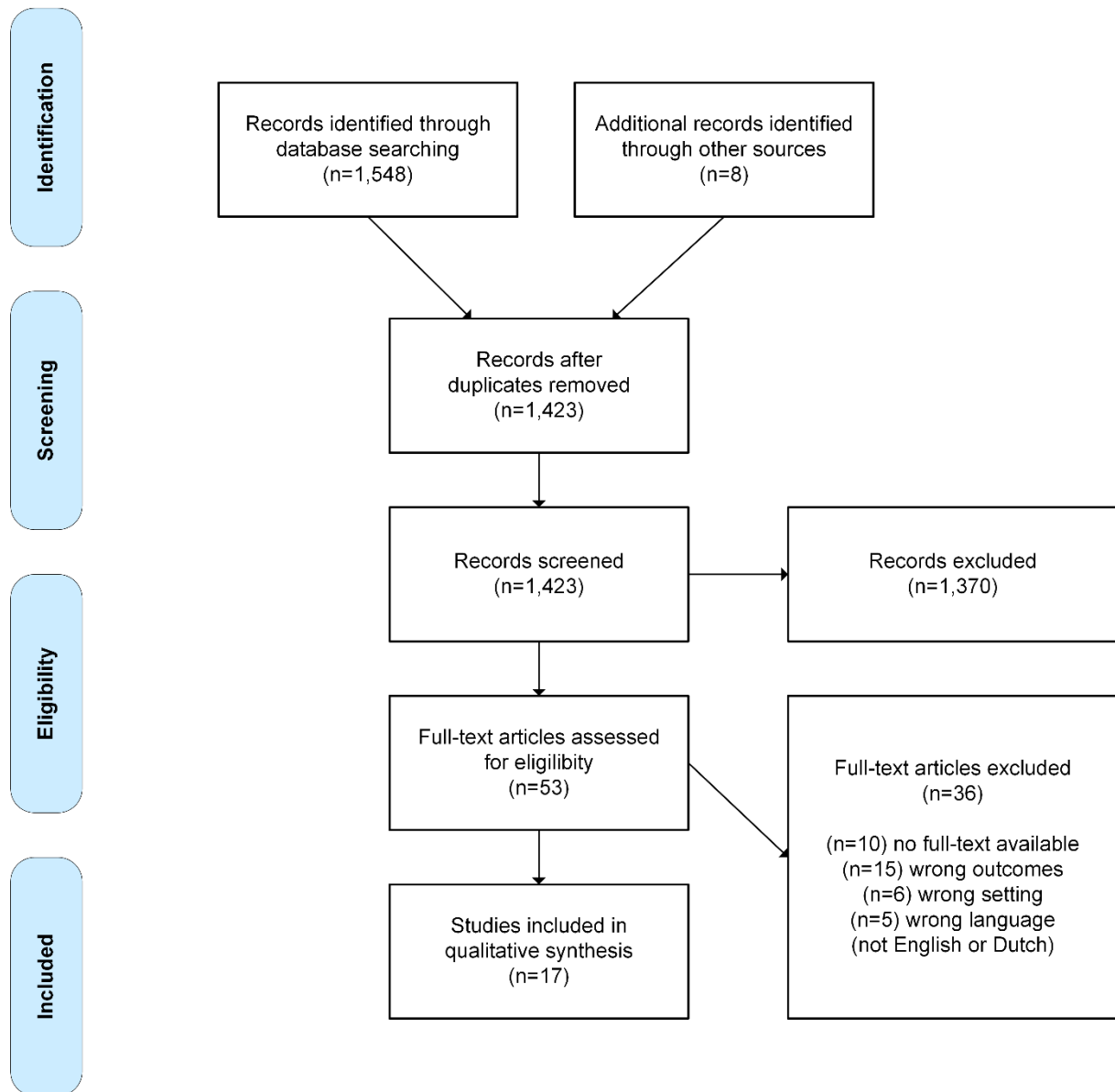
8 policy to inform close-relatives about  
9

10 physical activity.  
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13 *Abbreviations: %HT, percentage in highest tertile; D, discussion; NS, no selection; S, selection*  
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Supplementary Figure A1. Flow diagram of study selection.



# BMJ Open

## Development of a longlist of healthcare quality indicators for physical activity of patients during hospital stay: a modified RAND Delphi study

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Keywords:	Healthcare quality indicator, Performance indicator, Quality measure, Physical activity

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Manuscripts



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3 1 **TITLE**  
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5

6 2 Development of a longlist of healthcare quality indicators for physical activity of patients  
7  
8 3 during hospital stay: a modified RAND Delphi study  
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10

11  
12 4 **AUTHOR NAMES AND AFFILIATIONS**  
13  
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53  
54

55 19 **RUNNING TITLE**  
56  
57

58 20 Indicators for inpatient physical activity  
59  
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1  
2  
3 21 **KEYWORDS**  
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6 22 Healthcare quality indicator, performance indicator, quality measure, physical activity  
7  
8

9 23 **WORD, REFERENCE AND GRAPHICS COUNT**  
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11

12 24 Abstract: 285  
13

14 25 Main text: 2875  
15

16 26 References: 52  
17

18 27 Tables: 2  
19

20 28 Figures: 1  
21  
22

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24  
25 29 **BRIEF SUMMARY**  
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27  
28 30 A longlist of 23 quality indicators was constructed to grade, monitor, and improve care for  
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30 31 hospitalized adults of all ages with (or at risk of) low physical activity during hospital stay.  
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3 32 **ABSTRACT**  
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5

6 33 **Objective**  
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8

9 34 To develop a longlist of healthcare quality indicators for the care of hospitalized adults of all  
10  
11 35 ages with (or at risk of) low physical activity during the hospital stay.  
12  
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14  
15 36 **Design**  
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17  
18 37 A modified RAND/UCLA Appropriateness Method Delphi study.  
19  
20

21 38 **Setting and Participants**  
22

23  
24 39 Participants were physical therapists, nurses, and managers working in Dutch university  
25  
26 40 medical centers.  
27  
28

29  
30 41 **Methods**  
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32  
33 42 The current study consisted of three phases. Phase 1 was a systematic literature search for  
34  
35 43 quality indicators and relevant domains. Phase 2 was a survey amongst healthcare  
36  
37 44 professionals to collect additional data. Phase 3 consisted of three consensus rounds. In  
38  
39 45 round one, experts rated the relevance of the potential indicators online (Delphi). The  
40  
41 46 second round was a face-to-face expert panel meeting managed by an experienced  
42  
43 47 moderator. Acceptability, feasibility, and validity of the quality indicators were discussed by  
44  
45 48 the panel members. In round three, the panel members rated the relevance of the potential  
46  
47 49 indicators that were still under discussion.  
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53 50 **Results**  
54

55 51 The search retrieved 1,556 studies of which 53 studies were assessed full-text. Data from  
56  
57 52 seventeen studies were included in a first draft longlist of indicators. Eighteen nurses and  
58  
59  
60

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2  
3 53 one physical therapist responded to the survey and added data for a second draft of the  
4  
5 54 longlist. Experts constructed the final longlist of 23 indicators in three consensus rounds.  
6  
7  
8 55 Seven domains were identified: “Policy”, “Attitude and education”, “Equipment and  
9  
10 56 support”, “Evaluation”, “Information”, “Patient-tailored physical activity plan”, and  
11  
12  
13 57 “Outcome measure”.

## 16 58 **Conclusion and Implications**

17  
18  
19 59 The healthcare quality indicators developed in this study could help to grade, monitor, and  
20  
21 60 improve healthcare for hospitalized adults of all ages with (or at risk of) low physical activity  
22  
23  
24 61 during the hospital stay. Future research will focus on the psychometric quality of the  
25  
26 62 indicators and selection of key performance indicators.

## 29 63 **Strengths of this study**

- 30  
31  
32  
33 64 - The current study consists of a systematic review with duplicate study selection, an  
34  
35 65 extra survey in healthcare professionals, and three consensus rounds with a panel  
36  
37 66 meeting.  
38  
39  
40 67 - The panel meeting has been moderated by an internationally experienced moderator  
41  
42 68 - The longlist of healthcare quality indicators was developed by a multidisciplinary  
43  
44  
45 69 group of healthcare professionals including nurses, physical therapists, and  
46  
47 70 managers.

## 50 71 **Limitations of this study**

- 51  
52  
53 72 - Only five panel members participated in the second and third consensus rounds.  
54  
55  
56 73 - There were no patients and public involved in the coproduction of this study.  
57  
58  
59  
60

## 74 INTRODUCTION

75 Low physical activity of patients during the hospital stay has been extensively reported,<sup>1 2</sup>  
76 especially in older patients.<sup>3-5</sup> Low physical activity is a global healthcare issue with known  
77 adverse effects such as decreased strength, functional decline, a prolonged hospital stay,  
78 and institutionalization.<sup>6-9</sup> Common barriers to physical activity during the hospital stay  
79 include: symptoms (i.e. fatigue and pain), lack of motivation, medical devices, and the  
80 hospital environment.<sup>10-13</sup> Several quality improvement initiatives have been developed to  
81 improve physical activity of patients during the hospital stay.<sup>14-18</sup> Nevertheless, quality  
82 indicators to measure the results of such quality improvement strategies are scarce.<sup>19-21</sup>

83 Healthcare quality indicators, also known as performance indicators or quality measures, are  
84 used all over the world to quantify, grade, monitor, and improve the quality of healthcare.<sup>22-</sup>  
85 <sup>24</sup> Recently, qualitative indicators have also been introduced to express matters that are hard  
86 to capture quantitatively such as having confidence in being safe in a community.<sup>25</sup> Quality  
87 indicators are used in hospital care to provide information for quality improvement  
88 initiatives to, for example, decrease hospital mortality and complications.<sup>26 27</sup> Regarding the  
89 management of (low) physical activity of patients during the hospital stay, quality indicators  
90 could be helpful to capture persisting barriers in an attempt to improve the physical activity  
91 of all patients.<sup>28</sup> As a first step, a longlist of relevant quality indicators is needed to serve as a  
92 database for healthcare professionals, clinical teams, and organizations to measure  
93 performance for quality improvement purposes.<sup>21</sup> Therefore, the aim of this study is to  
94 develop a longlist of quality indicators for the healthcare in hospitalized adults of all ages  
95 with (or at risk of) low physical activity during the hospital stay.

## 96 **METHODS**

### 97 **Design and setting**

98 A modified RAND/UCLA Appropriateness Method Delphi study<sup>29</sup> was used to develop a  
99 longlist of quality indicators which meets the requirements of the Appraisal of Guidelines for  
100 Research and Evaluation (AGREE) II Healthcare Quality Indicator tool.<sup>30</sup> The AGREE II tool was  
101 used as a guiding checklist for study development (Supplementary Table A1). The reporting  
102 of this study followed guidelines of the Standards for QUality Improvement Reporting  
103 Excellence (SQUIRE 2.0).<sup>31</sup> The study was conducted as a quality improvement initiative of  
104 the Radboud university medical center and followed the principles of the Declaration of  
105 Helsinki<sup>32</sup> and Good Clinical Practice Guideline<sup>33</sup>. Full ethical consideration was waived by  
106 the Ethics Committee of the Radboud university medical center in accordance with the  
107 Dutch Medical Research with Human Subjects Law.

108 All phases from the RAND/UCLA method were followed (Figure 1). Phase 1 was a systematic  
109 literature search to identify indicators and relevant topics for potential indicators. Phase 2  
110 was an extra survey amongst healthcare professionals to provide additional relevant topics.  
111 This extra survey was a modification to the original RAND/UCLA method to obtain as many  
112 relevant indicators and topics as possible. Phase 3 consisted of three consensus rounds in  
113 which potential indicators were rated for their relevance by experts.

### 114 **Literature search**

115 The literature search was conducted to develop the first draft of a longlist of quality  
116 indicators for physical activity of hospitalized adults of all ages. CINAHL, MEDLINE, and  
117 EMBASE were systematically searched for studies up to 24 January 2018 using a pre-defined  
118 search strategy (Supplementary Table A2). The search strategy was compiled with the help

1  
2  
3 119 of an experienced librarian (OYC). The study selection and data extraction were  
4  
5 120 independently performed by two researchers (NK, SH).<sup>34</sup> An indicator was considered  
6  
7 121 relevant if a definition, numerator, and denominator were described in the literature and  
8  
9 122 related to physical activity of patients during the hospital stay. A topic was considered  
10  
11 123 relevant when information in the text of articles commented on the physical activity of  
12  
13 124 patients during the hospital stay.

### 18 125 **Extra survey**

21 126 All indicators and topics were then translated into the Dutch language and presented to a  
22  
23 127 convenience sample of healthcare professionals and managers of one Dutch academic  
24  
25 128 hospital using an online questionnaire in LimeSurvey.<sup>35</sup> The participants were requested to  
26  
27 129 suggest additional topics related to physical activity of hospitalized adults of all ages.  
28  
29 130 Furthermore, problems as a result of unclear translation or unclear formulation were solved  
30  
31 131 with the help of the participants. The second draft was constructed by two researchers (NK,  
32  
33 132 SH) with quality indicators from both the literature review and additional input from  
34  
35 133 healthcare professionals and managers. Each topic was converted into an indicator by  
36  
37 134 formulating a definition, numerator, and denominator. All converted topics were checked  
38  
39 135 for loss of information due to the translation by a third researcher (TH).

### 46 136 **Consensus rounds**

49 137 The second draft of the longlist of quality indicators was presented for relevance rating in  
50  
51 138 the three consensus rounds with experts.<sup>36</sup> To include a group of multidisciplinary experts in  
52  
53 139 the consensus rounds, we purposefully sampled national experts.<sup>37</sup> The multidisciplinary  
54  
55 140 expert panel consisted of 28 experts (12 physical therapists, 11 nurses, 5 managers). All  
56  
57 141 experts worked in a university medical center (secondary care); participated in care,

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2  
3 142 research, and innovation of physical activity in patients during the hospital stay; and were  
4  
5 143 representatives of an acknowledged national workgroup called *Moving Hospitals* (in Dutch:  
6  
7  
8 144 *Beweegziekenhuizen*). The experts were approached by email and telephone for  
9  
10 145 participation in this study.

11  
12  
13 146 In the first consensus round (Delphi method), the experts received the longlist of quality  
14  
15  
16 147 indicators online in LimeSurvey. All indicators were rated on relevance by fourteen experts  
17  
18 148 for the first consensus label: *selection*, *discussion* or *no selection*. In the second round, all  
19  
20 149 quality indicators were discussed in a panel meeting with five experts (panel members)  
21  
22  
23 150 moderated by an experienced moderator (PW). First, the panel members discussed the  
24  
25 151 acceptability to healthcare professionals and managers, the feasibility of use, and the validity  
26  
27  
28 152 in terms of providing more appropriate care and optimizing patient outcomes.<sup>29</sup> Finally, all  
29  
30 153 panel members voted (yes or no) for final consensus on *selection*, *discussion*, or *no selection*  
31  
32  
33 154 of the quality indicators. A methodologist (TH) observed the panel meeting from the side-  
34  
35 155 line and intervened if methodological errors occurred. In the third consensus round (Delphi  
36  
37  
38 156 method), all five panel members received the modified quality indicators and the quality  
39  
40 157 indicators which were still under discussion online in LimeSurvey for final consensus.

#### 41 42 43 158 **Data analysis**

44  
45  
46 159 The experts were instructed to rate the quality indicators only on relevance, not on, for  
47  
48 160 example, feasibility or reliability. The relevance was scored using a 9-point Likert scale  
49  
50 161 ranging from 1 *not relevant* to 9 *very relevant*. Consensus outcomes from the relevance  
51  
52 162 ratings were calculated using the *IQ healthcare consensus tool*.<sup>38</sup> The consensus outcomes  
53  
54 163 were based on the median score and the highest tertile, which resulted in labels: *selection*,  
55  
56  
57 164 *discussion*, or *no selection* (Table 1).<sup>38</sup> Quality indicators were labeled *selection* when the  
58  
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60



1  
2  
3 165 median score was  $\geq 8$  on the 9-point Likert scale and  $\geq 70\%$  of the responses were in the  
4  
5  
6 166 highest tertile. The label *discussion* was given as a result of three possible outcomes, 1) the  
7  
8 167 median score was  $\geq 8$  though less than 70% of the responses were in the highest tertile, 2)  
9  
10 168 the median score was  $< 8$  though more than 70% of the responses were in the highest tertile,  
11  
12  
13 169 or 3) 30% of the responses were in the lowest and highest tertile. An indicator was labeled  
14  
15 170 *no selection* when the median was  $\leq 7$  and less than 70% of the responses were in the highest  
16  
17  
18 171 tertile.

19  
20  
21 172 *Table 1. Labels corresponding to the consensus outcomes following different quantitative*  
22  
23 173 *relevance ratings of experts in the consensus rounds using the IQ healthcare consensus tool.*

	$\geq 70\%$ in the highest tertile	$\geq 30\%$ in the lowest tertile, and $\geq 30\%$ in the highest tertile	$< 70\%$ in the highest tertile
<b>Median <math>\leq 3</math></b>	Discussion	Discussion	No selection
<b>Median <math>4 \leq 7</math></b>	Discussion	Discussion	No selection
<b>Median <math>\geq 8</math></b>	Selection	Discussion	Discussion

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38 174  
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40 175 In the second consensus round (panel meeting), five panel members received information  
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42  
43 176 on all first-round outcomes with corresponding labels per quality indicator. The panel  
44  
45  
46 177 members voted yes or no for final *selection*, *discussion*, or *no selection* and consensus meant  
47  
48 178 that at least 75% of the members voted for one outcome. Where needed, the quality  
49  
50 179 indicators were modified to improve the concise formulation. If modification(s) were  
51  
52  
53 180 suggested, the quality indicators were reformulated and rated (online and anonymous) for a  
54  
55 181 second time by the panel members. The quality indicators needing further discussion were  
56  
57  
58 182 modified and rated by the same five panel members in the third online consensus round.  
59  
60 183 After the third consensus round, quality indicators which were labeled *selection* were

1  
2  
3 184 included in the longlist of quality indicators. All selected quality indicators were charted by  
4  
5 185 domain and translated into the English language with a standardized forward-backward  
6  
7  
8 186 method by the Language Centre of the HAN university of applied sciences, Nijmegen, the  
9  
10 187 Netherlands.

11  
12  
13 188 **Patient and public involvement**

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15  
16 189 No patients or public were involved in the design and conceptualization of this study.  
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For peer review only

## 190 RESULTS

### 191 Literature search

192 The systematic literature search retrieved a total of 1,556 studies, including 8 studies  
193 through searching the grey literature (Supplementary Table A2, Supplementary Figure A1).  
194 Full-text articles of 53 studies were assessed for eligibility, resulting in the inclusion of 17  
195 articles.<sup>1-3 6 19-21 39-48</sup> Data extraction resulted in the identification of 29 unique indicators and  
196 5 domains related to hospitalized adults of all ages with (or at risk of) low physical activity  
197 during hospital stay for a first draft longlist of quality indicators.

### 198 Extra survey

199 The 29 indicators and 5 domains were translated into the Dutch language and surveyed  
200 amongst 296 healthcare professionals. Eighteen nurses and 1 physical therapist responded,  
201 and they suggested 20 additional domains. Twenty-five domains were reformulated and  
202 converted into indicators, resulting in 54 unique indicators in the second draft longlist of  
203 quality indicators (Supplementary Table A3).

### 204 Consensus rounds

205 Consensus round 1 – Twenty-eight experts were invited to participate in the first online  
206 Delphi round. Fourteen experts responded: 8 physical therapists, 4 nurses and 2 managers. A  
207 total of 22 indicators were labeled *selection*, 12 indicators *discussion*, and 20 indicators *no*  
208 *selection* as a result of the first round. A detailed overview of ratings and selections is  
209 provided in Supplementary Table A4.

210 Consensus round 2 – The panel meeting lasted three hours with a total of 5 panel members:  
211 4 physical therapists and 1 nurse. At the start, the moderator asked to discuss two key issues

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3 212 which were identified in the first Delphi round. First, the concept of physical activity during  
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5 213 hospital stay was discussed and defined for the panel meeting as “*an active transfer of a*  
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7 214 *body(part) by a hospitalized patient*”. This did not include exercises or a transfer of a  
8  
9 215 body(part) using a machine or object such as a standing aid or hospital bed. Second, the  
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11 216 physical activity plan was defined as “*an object in which physical activity should be reported,*  
12  
13 217 *tailored at individual patients’ needs, with a specific structure stating personal goals,*  
14  
15 218 *frequency, intensity, time, and type of physical activity. Besides, the amount of support*  
16  
17 219 *needed for mobilization should be described, for example, the need for a walking aid*”. Of all  
18  
19 220 22 indicators with the label *selection*, the panel members voted consensus for *selection* of 15  
20  
21 221 indicators, *discussion* of 5 indicators, and *no selection* of 2 indicators. Of all 12 indicators  
22  
23 222 with the label *discussion*, the panel members voted consensus for *selection* of 5 indicators,  
24  
25 223 *discussion* of 1 indicator, and *no selection* of 6 indicators. Of all 20 indicators with the label  
26  
27 224 *no selection*, the panel members voted consensus for *discussion* of 1 indicator and *no*  
28  
29 225 *selection* of 19 indicators. As a result of the second consensus round, 20 indicators were  
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31 226 *selected*, 7 indicators remained under *discussion* and were included in round 3, and 27  
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33 227 indicators were *not selected* (Supplementary Table A4).  
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43 228 Consensus round 3 (Delphi) – In the third round, the same 5 panel members performed the  
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45 229 final rating of 7 remaining indicators resulting in the *selection* of 3 indicators, *discussion* of 3  
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47 230 indicators, and *no selection* of 1 indicator. The discussion remained for three indicators  
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49 231 (numbers 30, 32, 47) resulting in *no selection* due to a lack of consensus (Supplementary  
50  
51 232 Table A4). A flow diagram of the quality indicators selection is presented in Figure 1.  
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55 233 Please insert Figure 1 ‘Flow diagram showing the selection of healthcare quality indicators in  
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57 234 all phases of the study’ about here.  
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3 235 **Final longlist indicators**  
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6 236 The final longlist of quality indicators includes 23 indicators within seven domains (Table 2).  
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8 237 The first domain, "*Policy*", includes two structure indicators to evaluate institutional  
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10 238 characteristics of the hospital ward. The second domain, "*Attitude and education*", describes  
11  
12 239 four structure indicators to assess the attitude and education of physicians and nurses  
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14 240 related to physical activity stimulation. The third domain consists of three structure  
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16 241 indicators and one process indicator on "*Equipment and support*" to assess, for example, the  
17  
18 242 availability of walking aids and ergometers. The fourth domain, "*Evaluation*" includes five  
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20 243 process indicators on the evaluation of freedom and mobility limiting equipment (such as:  
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22 244 five-point fixation, intravenous lines, and urinary catheters), physical functioning of patients,  
23  
24 245 and timely documentation of falls by a healthcare professional. The fifth domain,  
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26 246 "*Information on physical activity*", consists of two process indicators related to the provision  
27  
28 247 of educational information to both patients and close-relatives. The sixth domain, "*Patient-*  
29  
30 248 *tailored physical activity plan*", includes three process indicators to assess the use and  
31  
32 249 follow-up of a patient-tailored physical activity plan that "*should be reported, tailored at*  
33  
34 250 *individual patients' needs, with a specific structure stating personal goals, frequency,*  
35  
36 251 *intensity, time, and type of physical activity*". The seventh domain, "*Outcome measure*",  
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38 252 consists of three outcome indicators to measure if patients are physically active within 48  
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40 253 hours after hospital admission, if patients perform physical activities as described in a  
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42 254 physical activity plan, and whether patients have an acceptable degree of pain.  
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255 Table 2. The final longlist of healthcare quality indicators for the care of patients with (or at  
 256 risk of) low physical activity during the hospital stay.

Domain	Healthcare quality indicators	
1. Policy	<b>Title:</b>	<b>1. The hospital ward should have the policy to improve the physical activity of patients (Structure indicator)</b>
	<i>Numerator:</i>	The hospital ward policy was to inform patients to be physically active during the hospital stay.
	<i>Denominator:</i>	The hospital ward. <i>Expert opinion</i>
	<b>Title:</b>	<b>2. The hospital ward should have the policy to inform close-relatives about physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital ward policy was to inform close-relatives of patients about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The hospital ward. <i>Expert opinion</i>
2. Attitude and education	<b>Title:</b>	<b>3. Physicians should stimulate the physical activity of patients (Structure, qualitative indicator)</b>
	<i>Numerator:</i>	The number of physicians who had a stimulating attitude towards the physical activity of patients during the hospital stay
	<i>Denominator:</i>	The number of physicians at the hospital ward. <i>Adapted from Inouye et al.<sup>44</sup> and Sourdet et al.<sup>40</sup></i>
	<b>Title:</b>	<b>4. Nurses should stimulate the physical activity of patients (Structure, qualitative indicator)</b>
	<i>Numerator:</i>	The number of nurses who had a stimulating attitude towards the physical activity of patients during the hospital stay.
	<i>Denominator:</i>	The number of nurses at the hospital ward. <i>Adapted from Inouye et al.<sup>44</sup> and Sourdet et al.<sup>40</sup></i>
	<b>Title:</b>	<b>5. Nurses should stimulate independent functioning in daily activities of patients (Structure, qualitative indicator)</b>
	<i>Numerator:</i>	The number of nurses who had a stimulating attitude towards independent physical functioning in daily activities of patients during the hospital stay.
	<i>Denominator:</i>	The number of nurses at the hospital ward. <i>Adapted from Sourdet et al.<sup>40</sup>, Pedersen et al.<sup>1</sup>, and Brown et al.<sup>3</sup></i>
	<b>Title:</b>	<b>6. Nurses should have followed education related to physical activity of patients (Structure indicator)</b>
	<i>Numerator:</i>	The number of nurses who followed education concerning the importance of physical activity of patients during the hospital stay.
	<i>Denominator:</i>	The number of patients at the hospital ward. <i>Adapted from Bail et al.<sup>19</sup></i>

3. Equipment and support	<b>Title:</b>	<b>7. Patients should have adequate walking aids (Structure indicator)</b>
	<i>Numerator:</i>	The number of patients who were advised to use (a) walking aid(s), with (an) adequate walking aid(s) available.
	<i>Denominator:</i>	The number of patients at the hospital ward who were advised to use (a) walking aid(s).
		<i>Expert opinion</i>
	<b>Title:</b>	<b>8. The hospital ward should provide adequate resources to stimulate physical activity (Structure indicator)</b>
	<i>Numerator:</i>	The hospital ward provided physical activity stimulating resources. Examples are walking routes, treadmills, ergometers.
	<i>Denominator:</i>	The hospital ward.
		<i>Adapted from Bail et al.<sup>19</sup> and Covinsky et al.<sup>39</sup></i>
	<b>Title:</b>	<b>9. The hospital ward should have orientation promoting resources (Structure indicator)</b>
	<i>Numerator:</i>	The hospital ward provided orientation stimulating resources. Examples are maps, direction signs, banners with route information
	<i>Denominator:</i>	The hospital ward ward.
		<i>Adapted from Bail et al.<sup>19</sup> and Covinsky et al.<sup>39</sup></i>
	<b>Title:</b>	<b>10. Patients should receive support for mobilization (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who received the support of (at least) one person for mobilization.
	<i>Denominator:</i>	The number of patients at the hospital ward who needed the support of (at least) one person for mobilization.
		<i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
4. Evaluation	<b>Title:</b>	<b>11. Nurses should evaluate freedom limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of freedom-limiting equipment. Examples are five-point fixation, wheelchair tables, and wheelchair brakes.
	<i>Denominator:</i>	The number of nurses at the hospital ward.
		<i>Adapted from Inouye et al.<sup>44</sup> and Sourdet et al.<sup>40</sup></i>
	<b>Title:</b>	<b>12. Nurses should evaluate mobility limiting equipment (Process indicator)</b>
	<i>Numerator:</i>	The nurses performed a daily assessment of the use of mobility-limiting equipment in patients. Examples are intravenous lines, urinary catheters, and oxygen tubes.
	<i>Denominator:</i>	The number of nurses at the hospital ward.
		<i>Adapted from Inouye et al.<sup>44</sup> and Sourdet et al.<sup>40</sup></i>
	<b>Title:</b>	<b>13. Nurses or physical therapists should evaluate the preadmission physical ability (Process indicator)</b>
	<i>Numerator:</i>	The number of patients in which the preadmission physical

		functioning was evaluated within 24 hours after hospital admission.
	<i>Denominator:</i>	The number of patients at the hospital ward. <i>Adapted from Brown et al.<sup>3</sup>, Pedersen et al.<sup>1</sup>, Lafont et al.<sup>41</sup>, Zisberg et al.<sup>6</sup>, Covinsky et al.<sup>39</sup>, Bail et al.<sup>19</sup>, Arora et al.<sup>42</sup>, Tropea et al.<sup>21</sup>, and Counsell et al.<sup>47</sup></i>
	<b>Title:</b>	<b>14. Nurses or physical therapists should evaluate the mobility (Process indicator)</b>
	<i>Numerator:</i>	The number of patients in which the mobility was evaluated within 24 hours after hospital admission.
	<i>Denominator:</i>	The number of patients at the hospital ward. <i>Adapted from Covinsky et al.<sup>39</sup></i>
	<b>Title:</b>	<b>15. Patients should be evaluated after a fall incident (Process indicator)</b>
	<i>Numerator:</i>	The number of patients in which a fall incident was evaluated within 24 hours after the fall.
	<i>Denominator:</i>	The number of patients at the hospital ward with a fall incident. <i>Adapted from Arora et al.<sup>20</sup> and Tropea et al.<sup>21</sup></i>
<b>5. Information</b>	<b>Title:</b>	<b>16. Patients should be informed about the importance of physical activity (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who were informed about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients at the hospital ward. <i>Adapted from Bail et al.<sup>19</sup></i>
	<b>Title:</b>	<b>17. Close-relatives of patients should be informed about the importance of physical activity (Process indicator)</b>
	<i>Numerator:</i>	The number of close-relatives of patients who were informed about the importance of physical activity during the hospital stay.
	<i>Denominator:</i>	The number of patients at the hospital ward with close-relatives. <i>Adapted from Bail et al.<sup>19</sup></i>
<b>6. Patient-tailored physical activity plan</b>	<b>Title:</b>	<b>18. Patients should have a physical activity plan (Process indicator)</b>
	<i>Numerator:</i>	The number of patients who had a physical activity plan within 48 hours after hospital admission.
	<i>Denominator:</i>	The number of patients at the hospital ward. <i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>
	<b>Title:</b>	<b>19. Patients in need for support during mobilization should have a physical activity plan (Process indicator)</b>
	<i>Numerator:</i>	The number of patients, who needed the support of (at least) one person for mobilization, with a physical activity plan.
	<i>Denominator:</i>	The number of patients at the hospital ward who needed the support of at (least) one person for mobilization.



	<i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>	
	<b>Title:</b>	<b>20. Patients without need for support during mobilization should have a physical activity plan (Process indicator)</b>
	<b>Numerator:</b>	The number of patients, who did not need the support of a person for mobilization, with a physical activity plan. Patients who only use (a) walking aid(s) are considered independent.
	<b>Denominator:</b>	The number of patients at the hospital ward who did not need the support of a person for mobilization.
	<i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>	
<b>7. Outcome measure</b>	<b>Title:</b>	<b>21. Patients should be physically active within 48 hours after hospital admission (Outcome indicator)</b>
	<b>Numerator:</b>	The number of patients who were physically active within 48 hours after hospital admission.
	<b>Denominator:</b>	The number of patients at the hospital ward.
	<i>Adapted from Arora et al.<sup>20</sup></i>	
	<b>Title:</b>	<b>22. Patients should perform physical activities as described in their physical activity plan (Outcome indicator)</b>
	<b>Numerator:</b>	The number of patients who performed physical activities as described in their physical activity plan.
	<b>Denominator:</b>	The number of patients at the hospital ward with a physical activity plan.
	<i>Adapted from Growdon et al.<sup>43</sup> and Lafont et al.<sup>41</sup></i>	
	<b>Title:</b>	<b>23. Patients should have an acceptable degree of pain (Outcome indicator)</b>
	<b>Numerator:</b>	The number of patients who scored <i>pain at rest</i> and <i>pain during physical activities</i> with a Numeric Pain Rating Scale $\leq 4$ .
	<b>Denominator:</b>	The number of patients at the hospital ward.
	<i>Adapted from Sourdet et al.<sup>40</sup>, Covinsky et al.<sup>39</sup>, and Arora et al.<sup>42</sup></i>	

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3 258 **DISCUSSION**  
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5 259 The current study presents the development of a longlist of quantitative and qualitative  
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7 260 healthcare quality indicators for the healthcare of hospitalized adults of all ages with (or at  
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10 261 risk of) low physical activity during the hospital stay. A multidisciplinary expert panel agreed  
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12 262 on a list of 23 quality indicators with important domains such as an aim, patient-tailored  
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14 263 physical activity plan, evaluation of physical activity, information on physical activity,  
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16 264 equipment to stimulate physical activity, policy regarding physical activity, and attitude  
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18 265 related to physical activity. The quality indicators involve several stakeholders such as  
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20 266 patients, close-relatives, and healthcare professionals (i.e. physical therapists, nurses, and  
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22 267 physicians), which is consistent with the multi-factorial nature of low physical activity of  
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24 268 patients during the hospital stay.<sup>39</sup>  
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30 269 Reviewing current literature related to indicator development in secondary healthcare,  
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32 270 shows several studies reporting on physical activity of the elderly people.<sup>19-21</sup> In contrast to  
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34 271 our study, none of these aimed to evaluate physical activity in hospitalized adults of all ages  
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36 272 during the hospital stay. Bail et al.<sup>19</sup> performed a literature review and constructed a  
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38 273 theoretical framework called 'Failure to maintain'. This study suggested quality indicators on  
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40 274 physical environment factors and process factors (treatment and regimes that may affect  
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42 275 the patient) to increase physical activity in complex older patients and ultimately decrease  
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44 276 the incidence of urinary tract infections, pneumonia, delirium, and pressure injuries. Arora et  
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46 277 al.<sup>20</sup> also performed a literature review for the general medical care of hospitalized  
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48 278 vulnerable elderly people. Out of thirty reported quality indicators, only two related to  
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50 279 physical activity of patients during the hospital stay: mobilization and inpatient fall  
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52 280 evaluation. These two domains are likely to be important, although two quality indicators do  
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54 281 not completely address the complex issue of low physical activity in patients during the  
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3 282 hospital stay.<sup>10</sup> Tropea et al.<sup>21</sup> performed a Delphi study with anonymous voting rounds and  
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5 283 a panel meeting similar to the current study, resulting in a set of quality indicators for  
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8 284 healthcare in older hospitalized patients. The set exists of three quality indicator domains  
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10 285 related to physical activity in patients during the hospital stay with five relevant quality  
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13 286 indicators: inpatient fall evaluation, fall-related injuries including fractures, pressure ulcer  
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15 287 risk assessment, discharge assessment, and assessment of physical function.

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18 288 Interestingly, the current study found two quality indicators with a focus on hospital ward  
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20 289 policy. In line with the Medical Research Council recommendations, quality improvement  
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23 290 studies which aim to improve physical activity in hospitalized adults of all ages should  
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26 291 include the perspective of local hospital policy in their study development and process  
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28 292 evaluation.<sup>49</sup> Furthermore, qualitative quality indicators were described to evaluate the  
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30 293 attitudes of healthcare professionals related to physical activity. Attitudes are often hard to  
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33 294 measure and therefore underexposed in other studies,<sup>25</sup> despite the knowledge that  
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36 295 attitudes of different stakeholders play an important role in healthcare quality  
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38 296 improvement.<sup>50</sup> With low physical activity during hospital stay being a multi-factorial issue in  
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41 297 hospitalized adults of all ages, the current study provides crucial knowledge to evaluate  
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43 298 healthcare for hospitalized adults of all ages (with or) at risk of low physical activity during  
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45 299 the hospital stay.

### 300 **Strengths and limitations**

301 The current study has several strengths. First, all methods as suggested by the modified  
302 RAND/UCLA are followed in detail. The use of a thorough systematic review with duplicate  
303 study selection, an extra survey in healthcare professionals, and consensus rounds with a  
304 panel meeting is considered as a very rigorous quality indicators development procedure.<sup>51</sup>

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3 305 Second, the panel meeting has been moderated by an internationally experienced  
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5 306 moderator (PW) which contributed to an efficient and systematic discussion of all quality  
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8 307 indicators.  
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11 308 There are some limitations to the current study that need to be discussed. First, only five  
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13 309 panel members participated in the panel meeting and the third consensus round which is  
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16 310 lower than the preferred seven to fifteen members within the RAND/UCLA method.<sup>29</sup>  
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18 311 Despite the reduced diversity of representation, the smaller group size was found to  
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21 312 stimulate the involvement of every panel member in the group discussion. Second, two  
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23 313 items of the AGREE II were not met.<sup>30</sup> The quality indicators were not submitted to external  
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25 314 review, and stakeholders such as patients, managers, and healthcare insurers were  
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28 315 insufficiently included in the process of quality indicators development. However, the limited  
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31 316 external review and stakeholder involvement could be adequately addressed in future  
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33 317 research.  
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### 36 318 **Recommendations for future research**

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39 319 As the next step of our quality improvement initiative, a multicenter study will be performed  
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42 320 to assess the acceptability, feasibility and reliability of the longlist of quality indicators for  
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44 321 the healthcare in hospitalized adults of all ages with (or at risk of) low physical activity during  
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46 322 the hospital stay. The longlist of quality indicators will be applied in practice to further assess  
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49 323 the acceptability to patients, healthcare professionals, and managers, as well as its feasibility  
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51 324 and reliability.<sup>52</sup> Future research will include a validation study following the Delphi  
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54 325 technique of Hasson et al.<sup>51</sup> in a team of national and international experts. This would  
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56 326 provide crucial information on the appropriateness of care and optimization of patient  
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59 327 outcomes. To improve feasibility in daily practice, it would be useful to select approximately  
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3 328 three or four key performance quality indicators from the current longlist. Ultimately, a  
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5 329 quality improvement study should use the key performance quality indicators in daily  
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8 330 healthcare and assess their effect on patient outcomes such as strength and functional  
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10 331 decline.

## 13 332 **Conclusions and Implications**

16 333 The healthcare quality indicators developed within the current study form a rigorous basis to  
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18 334 evaluate healthcare for hospitalized adults of all ages with (or at risk of) low physical activity  
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20 335 during the hospital stay. Improvements in healthcare related to low physical activity of  
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22 336 patients during the hospital stay are urgently needed, as the epidemic of low physical  
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24 337 activity has already existed for decades with known, well-reported adverse effects. Quality  
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26 338 improvement projects to increase the physical activity of patients during the hospital stay  
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28 339 using currently developed healthcare quality indicators are promising, relevant, and will  
29  
30 340 improve outcomes in hospitalized adults of all ages.

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42  
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46  
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## 50 348 **COMPETING INTERESTS**

53 349 All authors declare that they have no competing interests.  
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3 350 **FUNDING**  
4  
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7  
8 352 profit sectors.  
9

10  
11  
12 353 **AUTHORS' CONTRIBUTIONS**  
13

14  
15 354 All listed authors meet the ICMJE criteria for authorship. NK, SH, and TH contributed to study  
16  
17 355 conceptualization. Data collection and analysis was handled by NK, SH, PW, and TH. SB  
18  
19 356 provided resources and contributed to project administration. PW and TH supervised all  
20  
21 357 research activities. All authors reviewed concept drafts of the manuscript and approved  
22  
23 358 submission of the final draft.  
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28 359 **DATA AVAILABILITY**  
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30  
31 360 No additional data are available. All data is provided in detail in the online Supplementary  
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33 361 File.  
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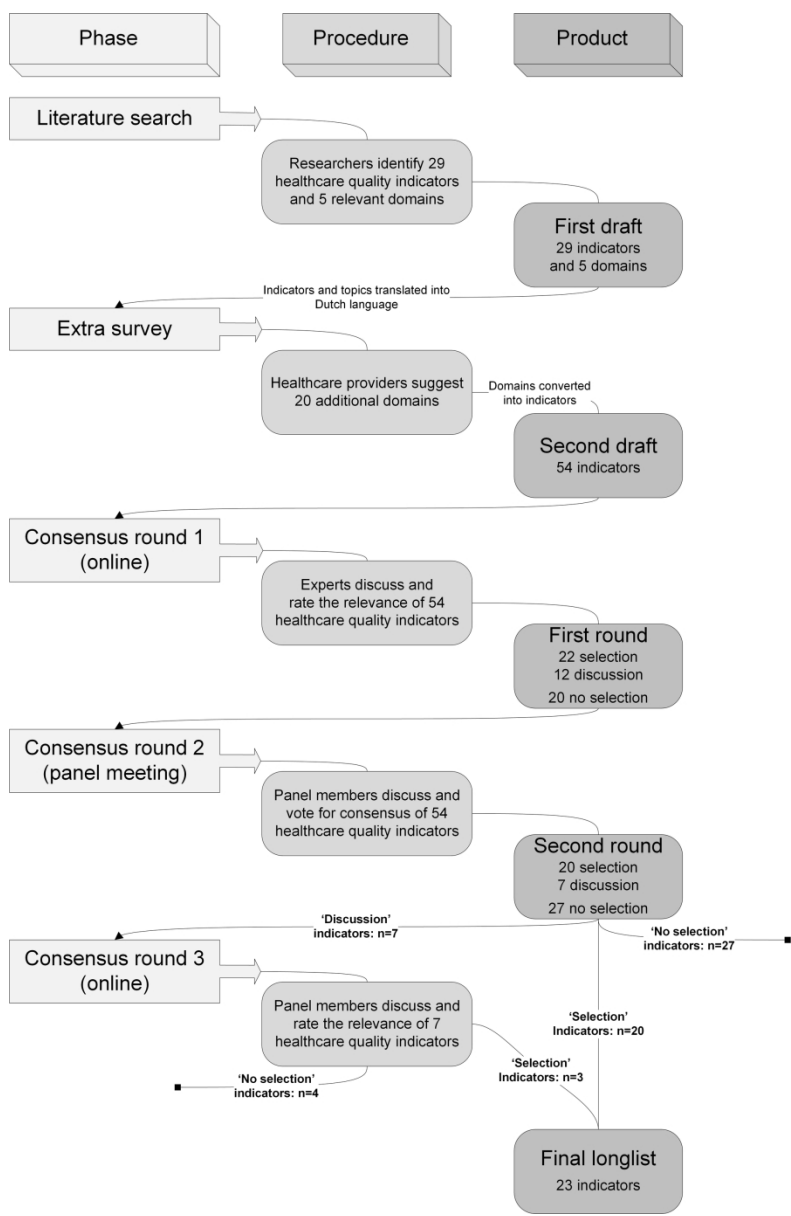


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For peer review only



Flow diagram showing the selection of healthcare quality indicators in all phases of the study

185x284mm (300 x 300 DPI)

Supplementary Table A1. Agree II quality indicator tool: Quality items and followed procedures for the development of healthcare quality indicators for the care of patients with (or at risk of) low physical activity during hospital stay. Adapted from Peter et al.<sup>[55]</sup>

<b>Domain 1. Scope and purpose</b>	
The overall objectives of the quality indicator development initiative are specifically described.	The purpose of this quality indicators development was to assess the quality of care for patients with (or at risk of) low physical activity during hospital stay.
The population to whom the indicators are meant to apply is specifically described.	Adult hospitalized adults of all ages during hospital stay, with specific attention for patients with (or at risk of) low physical activity.
<b>Domain 2. Stakeholder involvement</b>	
The indicator development group includes individuals from relevant professional groups in line with the overall objective.	First, an acknowledged group of experts in physical activity of patients during hospital stay was contacted. From this group with healthcare providers, researchers, innovators, and implementation experts, a multidisciplinary expert panel was formed.
The target users of the indicators are clearly defined.	The target users of the quality indicators are physical therapists and nurses working in hospital care, treating patients with low physical activity during hospital stay.
<b>Domain 3. Rigour development</b>	
Systematic methods were used to search for evidence.	Evidence was based on a systematic literature search conducted in CINAHL, MEDLINE, and EMBASE. Details are provided in Supplementary Table A2 and Supplementary Figure A1.
The criteria for selecting the indicators are clearly described.	A RAND/UCLA-modified Delphi method was used for the selection of quality indicators. The <i>IQ healthcare consensus tool</i> was used to calculate consensus and provide information on selection, discussion or no selection according to pre-defined cut-off values.
The methods for formulating the indicators are clearly described.	Formulation of the quality indicators was done by the researchers (NK, SH) and checked by a third researcher (TH). The formulation was subsequently discussed by all healthcare providers and experts participating in this study before the second draft of the longlist of quality indicators. The expert panel commented on the formulation of all quality indicators before discussing indicator selection and the final draft of the longlist of quality indicators.
There was a predefined quantitative process for	A numeric rating scale from 1 (completely irrelevant) to 9 (extremely relevant) was

indicator selection.	used for scoring by the expert panel. Details for quantitative quality indicators selection are provided in Supplementary Table 2.
An explicit link between the indicators and supporting evidence is provided.	For each quality indicator, relevant studies were provided in summary and full-text. If no relevant evidence was available, it was stated that the quality indicator was based on expert opinion.
The indicators have been externally reviewed by experts/end-users prior to publication.	An external review was not conducted. A subsequent study will be conducted to test the feasibility, validity, and implementation of the quality indicators suggested in the final draft longlist of quality indicators.
A procedure for updating the indicators is provided and/or the indicator set has been updated.	The quality indicators will be updated every five years in collaboration with the national professional association for hospital physical therapy.
<b>Domain 4. Clarity of presentation</b>	
The indicators are specific and unambiguous.	For each quality indicator, a numerator and denominator were formulated to quantify the indicator, so that they are suitable for assessing the quality of care.
<b>Domain 5. Applicability</b>	
The indicators are supported with tools for use	Tools suggested for usage were electronic medical records, direct observations using behavioral mapping, and interviews.
The potential organizational barriers to applying the indicators have been discussed.	Potential organizational barriers were suggested such as the need to include more stakeholders (i.e. patients, health insurers), and the degree in which all quality indicators could be measured validly. Those barriers will be handled within the subsequent feasibility, validity, and implementation study.
The indicator development initiative is editorially independent from the funding body.	This research was conducted without any funding.
Comparing interests of indicator development group members have been recorded and addressed.	All authors declared that there were no conflicts of interest.
<b>Domain 6. 'Rate the overall quality of this initiative'</b>	Not applicable to quality indicators development.

*AGREE, Appraisal of Guidelines for Research and Evaluation; RAND/UCLA, Research and Development/University of California, Los Angeles*

Supplementary Table A2. Literature search details.

PubMed:

**Domain:**

(Inpatients[MeSH] OR Hospitalization[MeSH] OR "Adolescent, Hospitalized"[MeSH] OR "Child, Hospitalized"[MeSH] OR inpatient\*[tiab] OR hospitalized[tiab] OR hospitalization\*[tiab] OR hospitalised OR hospitalisation\*[tiab] OR hospital[tiab])

**Determinant:**

Early Ambulation[MeSH] OR Exercise[MeSH] OR Iatrogenic Disease[MeSH] OR Locomotion[MeSH] OR Motor Activity[MeSH] OR Muscle Fatigue[MeSH] OR Muscle Strength[MeSH] OR Physical Endurance[MeSH] OR Physical Exertion[MeSH] OR Physical Fitness[MeSH] OR Physical Therapy Modalities[MeSH] OR Posture[MeSH] OR Sedentary lifestyle[MeSH] OR Self Care[MeSH] OR "Mobility Limitation"[MeSH] OR Ambulation[tiab] OR Exercis\*[tiab] OR Fitness[tiab] OR Hospital Acquired Condition\*[tiab] OR Iatrogenic disabilit\*[tiab] OR Iatrogenic Disease\*[tiab] OR Iatrogenic disorder\*[tiab] OR Immobil\*[tiab] OR Locomot\*[tiab] OR mobil\*[tiab] OR motor activity[tiab] OR Muscle Fatigue[tiab] OR Muscle Strength[tiab] OR Muscular Fatigue[tiab] OR Physical activ\*[tiab] OR Physical Effort\*[tiab] OR Physical Endurance\*[tiab] OR Physical Exertion\*[tiab] OR Physical inactivity[tiab] OR Physical therap\*[tiab] OR Physiotherap\*[tiab] OR Posture\*[tiab] OR Seated Position\*[tiab] OR Sedentary behavior[tiab] OR Sedentary behaviour[tiab] OR Sedentary lifestyle[tiab] OR Self Care[tiab] OR Self Management[tiab] OR Sitting Position\*[tiab] OR Standing Position\*[tiab] OR stepping[tiab] OR hospital associated disorder\*[tiab]

**Outcome:**

"Quality indicators, Health Care"[MeSH] OR Healthcare Quality indicator\*[tiab] OR Health care Quality indicator\*[tiab] OR Healthcare Global Trigger Tool\*[tiab] OR Health care Global Trigger Tool\*[tiab] OR structure indicator\*[tiab] OR process indicator\*[tiab] OR performance

indicator\*[tiab] OR Health indicator\*[tiab] OR health status indicator\*[tiab] OR qualitative indicator\*[tiab] OR quantitative indicator\*[tiab]

EMBASE:

**Domain**

'hospital patient'/exp OR 'hospitalization'/exp OR (inpatient\* OR hospitalized OR hospitalization\* OR hospitalised OR hospitalisation\* OR hospital):ti,ab,kw

**Determinant**

'mobilization'/exp OR 'exercise'/exp OR 'endurance'/exp OR 'physical activity'/exp OR 'physical capacity'/exp OR 'physical inactivity'/exp OR 'iatrogenic disease'/exp OR 'patient mobility'/exp OR 'physical mobility'/exp OR 'locomotion'/exp OR 'muscle strength'/exp OR 'muscle fatigue'/exp OR 'fitness'/exp OR 'sedentary behavior'/exp OR 'sedentary lifestyle'/exp OR 'cardiorespiratory fitness'/exp OR 'physiotherapy'/exp OR 'body position'/exp OR 'self care'/exp OR 'walking difficulty'/exp OR 'stepping'/exp OR 'immobility'/exp OR Ambulation:ti,ab,kw OR Exercis\*:ti,ab,kw OR Fitness:ti,ab,kw OR ('Hospital Acquired' NEXT/1 Condition\*):ti,ab,kw OR (Iatrogenic NEXT/1 disabilit\*):ti,ab,kw OR (Iatrogenic NEXT/1 Disease\*):ti,ab,kw OR (Iatrogenic NEXT/1 disorder\*):ti,ab,kw OR Immobil\*:ti,ab,kw OR Locomot\*:ti,ab,kw OR mobil\*:ti,ab,kw OR 'motor activity':ti,ab,kw OR 'Muscle Fatigue':ti,ab,kw OR 'Muscle Strength':ti,ab,kw OR 'Muscular Fatigue':ti,ab,kw OR (Physical NEXT/1 activ\*):ti,ab,kw OR (Physical NEXT/1 Effort\*):ti,ab,kw OR (Physical NEXT/1 Endurance\*):ti,ab,kw OR (Physical NEXT/1 Exertion\*):ti,ab,kw OR 'Physical inactivity':ti,ab,kw OR (Physical NEXT/1 therap\*):ti,ab,kw OR Physiotherap\*:ti,ab,kw OR Posture\*:ti,ab,kw OR (Seated NEXT/1 Position\*):ti,ab,kw OR 'Sedentary behavior':ti,ab,kw OR 'Sedentary behaviour':ti,ab,kw OR 'Sedentary lifestyle':ti,ab,kw OR 'Self Care':ti,ab,kw OR 'Self Management':ti,ab,kw OR (Sitting NEXT/1 Position\*):ti,ab,kw OR (Standing NEXT/1 Position\*):ti,ab,kw OR stepping:ti,ab,kw OR 'hospital associated disorder':ti,ab,kw

**Outcome**

'health status indicator'/exp OR 'clinical indicator'/exp OR 'performance measurement system'/exp  
 OR 'public health systems research'/exp OR ('Healthcare Quality' NEXT/1 Indicator\*):ti,ab,kw OR  
 ('Health care Quality' NEXT/1 Indicator\*):ti,ab,kw OR ('Healthcare Global Trigger' NEXT/1  
 Tool\*):ti,ab,kw OR ('Health care Global Trigger' NEXT/1 Tool\*):ti,ab,kw OR (structure NEXT/1  
 indicator\*):ti,ab,kw OR (process NEXT/1 indicator\*):ti,ab,kw OR (performance NEXT/1  
 indicator\*):ti,ab,kw OR (Health NEXT/1 indicator\*):ti,ab,kw OR ('health status' NEXT/1  
 indicator\*):ti,ab,kw OR (qualitative NEXT/1 indicator\*):ti,ab,kw OR (quantitative NEXT/1  
 indicator\*):ti,ab,kw'

CINAHL

**Domain**

(MH "Inpatients+") OR (MH "Hospitalization+" ) OR TI inpatient\* OR AB inpatient\* OR TI  
 hospitalized OR AB hospitalized OR TI hospitalization\* OR AB hospitalization\* OR TI hospitalised  
 OR AB hospitalised OR TI hospitalisation\* OR AB hospitalisation\* OR TI hospital OR AB hospital

**Determinant**

(MH "Early Ambulation") OR (MH "Exercise+") OR (MH "Physical Therapy+") OR (MH "Iatrogenic  
 Disease") OR (MH "Physical Endurance+") OR (MH "Physical Fitness+") OR (MH "Body positions+")  
 OR (MH "Locomotion+") OR (MH "Muscle Fatigue") OR (MH "Muscle strength+") OR (MH "Life  
 Style, Sedentary") OR (MH "Self Care+") OR (MH "Physical Mobility") OR (MH "Physical Mobility  
 Impairment (Saba CCC)") OR (MH "Impaired Physical Mobility (NANDA)") OR (MH "Immobility") OR  
 (MH "Immobility Management (Iowa NIC)") OR (MH "physical activity") OR TI (Ambulation OR  
 Exercis\* OR Fitness OR "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic  
 Disease\*" OR "Iatrogenic disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR



"Muscle Fatigue" OR "Muscle Strength" OR "Muscular Fatigue" OR "Physical activ\*" OR "Physical Effort\*" OR "Physical Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical therap\*" OR Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR "Sedentary behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting Position\*" OR "Standing Position\*" OR stepping) OR AB (Ambulation OR Exercis\* OR Fitness OR "Hospital Acquired Condition\*" OR "Iatrogenic disabilit\*" OR "Iatrogenic Disease\*" OR "Iatrogenic disorder\*" OR Immobil\* OR Locomot\* OR mobil\* OR "motor activity" OR "Muscle Fatigue" OR "Muscle Strength" OR "Muscular Fatigue" OR "Physical activ\*" OR "Physical Effort\*" OR "Physical Endurance\*" OR "Physical Exertion\*" OR "Physical inactivity" OR "Physical therap\*" OR Physiotherap\* OR Posture\* OR "Seated Position\*" OR "Sedentary behavior" OR "Sedentary behavior" OR "Sedentary lifestyle" OR "Self Care" OR "Self Management" OR "Sitting Position\*" OR "Standing Position\*" OR stepping OR 'hospital associated disorder')

### Outcome

(MH "Health Status Indicators") OR (MH "Quality of Health Care") OR (MH "Performance Measurement Systems") OR TI("Healthcare Quality indicator\*" OR "Health care Quality indicator\*" OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR "structure indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health indicator\*" OR "health status indicator\*") OR AB("Healthcare Quality indicator\*" OR "Health care Quality indicator\*" OR "Healthcare Global Trigger Tool\*" OR "Health care Global Trigger Tool\*" OR "structure indicator\*" OR "process indicator\*" OR "performance indicator\*" OR "Health indicator\*" OR "health status indicator\*" OR "qualitative NEXT/1 indicator\*" OR "quantitative NEXT/1 indicator\*")

Supplementary Table A3. The *second draft with 54* healthcare quality indicators for the care of patients with (or at risk of) low physical activity during the hospital stay: Dutch version.

<b>Indicator 1:</b>	<b>Klinische patiënten die zelfstandig kunnen lopen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die zelfstandig lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen, waarbij een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten, dat in staat is om zelfstandig te lopen.
<b>Indicator 2:</b>	<b>Dagelijkse loopmomenten van klinische patiënten die zelfstandig kunnen lopen, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Patiënten lopen dagelijks zelfstandig, zoals beschreven in het activiteitenplan.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten dat dagelijks zelfstandig loopt, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, dat in staat is om zelfstandig te lopen.
<b>Indicator 3:</b>	<b>Klinische patiënten die ondersteuning nodig hebben met lopen van één of meerdere personen, met een beschreven activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die ondersteuning nodig hebben bij het lopen van een persoon, bij wie een activiteitenplan is beschreven.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan die lopen met ondersteuning van een persoon.
<b>Indicator 4:</b>	<b>Dagelijkse loopmomenten van klinische patiënten die ondersteuning nodig hebben met lopen van een persoon, zoals beschreven in het activiteitenplan.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Er is een activiteitenplan beschreven, waarin dagelijkse loopmomenten worden beschreven voor klinische patiënten die ondersteuning nodig hebben met lopen.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten die dagelijks lopen met ondersteuning van een persoon, zoals beschreven in het activiteitenplan.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten met een activiteitenplan, die lopen met ondersteuning van een persoon.
<b>Indicator 5:</b>	<b>Klinische patiënten met fysiotherapeutische begeleiding.</b>
<b>Thema:</b>	Standaard consult fysiotherapie.
<b>Item:</b>	De klinische patiënt ontvangt fysiotherapie begeleiding.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling met fysiotherapie begeleiding.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling.
<b>Indicator 6:</b>	<b>Percentage klinische patiënten met een activiteitenplan binnen 48 uur na opname.</b>
<b>Thema:</b>	Een gestructureerd activiteitenplan.
<b>Item:</b>	Patiënten hebben binnen 48 uur na opname een activiteitenplan.

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3	<b>Teller:</b>	Het aantal klinische patiënten per afdeling met een activiteitenplan binnen 48 uur na
4		opname.
5	<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
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7	<b><u>Indicator 7:</u></b>	<b>Klinische patiënten, die voor opname mobiel waren, die worden gemobiliseerd binnen</b>
8		<b>48 uur post operatief.</b>
9	<b>Thema:</b>	Mobiliseren.
10	<b>Item:</b>	Tijdig mobiliseren.
11	<b>Teller:</b>	Het aantal klinische patiënten per afdeling die binnen 48 uur postoperatief mobiliseren.
12	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling na een operatie.
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14	<b><u>Indicator 8:</u></b>	<b>Klinische patiënten met lichamelijke beperking, met een oefenprogramma.</b>
15	<b>Thema:</b>	Een passend oefenprogramma.
16	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
17		ondersteuning van de armleningen om op te staan vanuit de stoel), of
18		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
19		oefenprogramma worden aangeboden.
20	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in lichamenlijk
21		functioneren per afdeling, met een oefenprogramma.
22	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in lichamenlijk
23		functioneren.
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25	<b><u>Indicator 9:</u></b>	<b>Klinische patiënten met een beperking in dagelijkse activiteiten, met een</b>
26		<b>oefenprogramma.</b>
27	<b>Thema:</b>	Een passend oefenprogramma.
28	<b>Item:</b>	Als een klinisch opgenomen patiënt moeite heeft met het looppatroon, kracht (MRC 4 of
29		ondersteuning van de armleningen om op te staan vanuit de stoel), of
30		uithoudingsvermogen (bijv. dyspneu bij lichte vermoeidheid), dan moet er een
31		oefenprogramma worden aangeboden.
32	<b>Teller:</b>	Het aantal opgenomen klinische patiënten met een beperking in dagelijkse activiteiten
33		per afdeling, met een oefenprogramma.
34	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling met een beperking in dagelijkse
35		activiteiten.
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37	<b><u>Indicator 10:</u></b>	<b>Klinische patiënten dat in staat is zonder hulp te bewegen, bij ontslag.</b>
38	<b>Thema:</b>	Verandering in mobiliteit.
39	<b>Item:</b>	Percentage van patiënten die bij ontslag in staat zijn om zelfstandig te verplaatsen,
40		eventueel met behulp van een rolstoel, van de patiënten die immobiel of afhankelijk van
41		een rolstoel waren bij opname.
42	<b>Teller:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
43		afhankelijk van rolstoel waren, en bij ontslag zelfstandig te verplaatsen, eventueel met
44		behulp van een rolstoel.
45	<b>Noemer:</b>	Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of
46		afhankelijk van rolstoel waren.
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48	<b><u>Indicator 11:</u></b>	<b>Klinische patiënten dat in staat is zonder hulp te lopen, bij ontslag.</b>
49	<b>Thema:</b>	Patiëntenmobiliteit.
50	<b>Item:</b>	Het inzichtelijk krijgen van het percentage van klinische patiënten die in staat zijn
51		zelfstandig te lopen bij ontslag, eventueel met loophulpmiddel, van de patiënten die
52		immobiel waren of afhankelijk van een rolstoel bij opname.
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**Teller:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of afhankelijk van rolstoel waren, en bij ontslag zelfstandig lopen, eventueel met behulp van een loophulpmiddel.

**Noemer:** Het aantal opgenomen klinische patiënten per afdeling die bij opname immobiel of afhankelijk van rolstoel waren.

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**Indicator 12: Artsen die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De artsen stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal artsen per afdeling.

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**Indicator 13: Verpleegkundigen die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De verpleegkundigen stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal verpleegkundigen per afdeling.

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**Indicator 14: Fysiotherapeuten die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.**

**Thema:** Stimuleren zelfstandig ADL.

**Item:** De fysiotherapeuten stimuleren klinische patiënten om hun algemeen dagelijkse levensverrichtingen zelfstandig uit te voeren.

**Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig uitvoeren van dagelijkse levensverrichtingen.

**Noemer:** Het aantal fysiotherapeuten per afdeling.

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**Indicator 15: Artsen die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.**

**Thema:** Stimuleren lopen.

**Item:** De artsen stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.

**Teller:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Noemer:** Het aantal artsen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

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**Indicator 16: Verpleegkundigen die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.**

**Thema:** Stimuleren lopen.

**Item:** De verpleegkundigen stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.

**Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Noemer:** Het aantal verpleegkundigen per afdeling, die geloven dat ze klinische patiënten

stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Indicator 17:** **Fysiotherapeuten die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen.**

**Thema:** Stimuleren lopen.

**Item:** De fysiotherapeuten stimuleren klinische patiënten om zelfstandig te lopen van het bed naar de stoel.

**Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Noemer:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze klinische patiënten stimuleren in het zelfstandig lopen van het bed naar de stoel.

**Indicator 18:** **Klinische patiënten met vrijheidsbeperkende middelen.**

**Thema:** Immobilisatie.

**Item:** Inventariseren van gebruik van vrijheidsbeperkende middelen voor het voorkomen van vallen.

**Teller:** Het aantal opgenomen klinische patiënten per afdeling waarbij vrijheidsbeperkende middelen zijn ingezet.

**Noemer:** Het aantal opgenomen klinische patiënten per afdeling.

**Indicator 19:** **Klinische patiënten met een valincident, waarbij het valincident binnen 24 uur wordt geëvalueerd.**

**Thema:** Evaluatie vallen.

**Item:** Er vindt een evaluatie plaats van een valincident binnen 24 uur. De evaluatie bestaat uit ten minste medicijngebruik en aan- of afwezigheid van (voortekenen van) ziekte.

**Teller:** Het aantal klinische patiënten per afdeling met een valincident, waarbij dit geëvalueerd is binnen 24 uur.

**Noemer:** Het aantal klinische patiënten per afdeling met een valincident.

**Indicator 20:** **Klinische patiënten met documentatie van een valincident.**

**Thema:** Documentatie vallen.

**Item:** Er vindt documentatie plaats van een valincident, waarbij de potentiële oorzaken zijn beschreven.

**Teller:** Het aantal klinische patiënten per afdeling met een documentatie van een valincident.

**Noemer:** Het aantal klinische patiënten per afdeling met een valincident.

**Indicator 21:** **Klinische patiënten met documentatie van preopname functioneren.**

**Thema:** Preopname functioneren.

**Item:** Er vindt documentatie plaats van het preopname functioneren. De documentatie betreft beschrijven van het valrisico, gebruik van rollator of stok en de onafhankelijkheid in het uitvoeren van algemeen dagelijkse levensverrichtingen voor opname.

**Teller:** Het aantal klinische patiënten per afdeling, waarbij het preopname functioneren is gedocumenteerd.

**Noemer:** Het aantal klinische patiënten per afdeling.

**Indicator 22:** **Klinische patiënten, bij wie tijdens opname een evaluatie van de mobiliteit plaatsvindt.**

**Thema:** Evaluatie mobiliteit.

**Item:** Bij opname in het ziekenhuis worden de volgende transfers geëvalueerd: van lig naar zit transfereren zonder hulp; uit bed komen en tot stand komen vanuit bed; een aantal passen lopen, en het gebruik maken van een stok of een rollator zo nodig.

<b>Teller:</b>	Het aantal klinische patiënten per afdeling waar bij opname een evaluatie van mobiliteit plaatsvindt.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
<b><u>Indicator 23:</u></b>	<b>Klinische patiënten met geïnformeerde familie.</b>
<b>Thema:</b>	Informeren familie.
<b>Item:</b>	De klinische patiënten en familie zijn geïnformeerd over het belang van bewegen.
<b>Teller:</b>	Het aantal klinische patiënten met familie per afdeling, die zijn geïnformeerd over het belang van bewegen.
<b>Noemer:</b>	Het aantal klinische patiënten met familie per afdeling.
<b><u>Indicator 24:</u></b>	<b>Klinische patiënten dat is geïnformeerd over hun zorgtraject.</b>
<b>Thema:</b>	Informeren patiënt.
<b>Item:</b>	Het zorgtraject met betrekking tot bewegen wordt samen met de klinische patiënt besproken. Een zorgtraject met betrekking tot bewegen bestaat onder andere uit het bespreken van het benodigde niveau van fysiek functioneren voor ontslag.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling, waar bij het zorgtraject met betrekking tot bewegen is besproken.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.
<b><u>Indicator 25:</u></b>	<b>Artsen die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van artsen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal artsen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal artsen per afdeling.
<b><u>Indicator 26:</u></b>	<b>Verpleegkundigen die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van verpleegkundigen draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal verpleegkundigen per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal verpleegkundigen per afdeling.
<b><u>Indicator 27:</u></b>	<b>Fysiotherapeuten die bedrust beschouwen als de dagelijkse gang van zaken.</b>
<b>Thema:</b>	Mindset.
<b>Item:</b>	De mindset van fysiotherapeuten draagt bij aan bedrust bij klinische opgenomen patiënten als een dagelijkse gang van zaken.
<b>Teller:</b>	Het aantal fysiotherapeuten per afdeling die geloven dat bedrust behoort tot de dagelijkse gang van zaken.
<b>Noemer:</b>	Het aantal fysiotherapeuten per afdeling.
<b><u>Indicator 28:</u></b>	<b>Klinische patiënten met bedrust zonder medische noodzaak.</b>
<b>Thema:</b>	Bedrust.
<b>Item:</b>	Bedrust zonder medische noodzaak is van belang bij de hoeveelheid bewegen voor de klinisch opgenomen patiënt.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling dat bedrust heeft voorgeschreven gekregen, zonder medische noodzaak.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling.

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<b>Indicator 29:</b>	<b>Lager opgeleide zorgverleners op de afdeling.</b>
<b>Thema:</b>	Niveau van opleiding.
<b>Item:</b>	Lager opgeleide zorgmedewerkers geven een lagere prioriteit aan het mobiliseren van patiënten dan hoger opgeleide zorg medewerkers.
<b>Teller:</b>	Het aantal lager opgeleide zorgverleners op de afdeling.
<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
<b>Indicator 30:</b>	<b>Zorgverleners die aangeven dat werkdruk een beperkende factor is voor het mobiliserende van klinische patiënten.</b>
<b>Thema:</b>	Werkdruk.
<b>Item:</b>	Werkdruk heeft een negatief effect op het structureel bewegen van patiënten.
<b>Teller:</b>	Het aantal zorgverleners op de afdeling, die aangeeft dat de eigen werkdruk een beperkende factor is voor de optimale hoeveelheid beweging van patiënten.
<b>Noemer:</b>	Het aantal zorgverleners op de afdeling.
<b>Indicator 31:</b>	<b>Klinische patiënten die ervaren te vroeg ontslagen te zijn.</b>
<b>Thema:</b>	Triagesysteem.
<b>Item:</b>	Met de invoering van het triagesysteem ligt er druk op het ontslaan van patiënten minder op zelfstandig kunnen bewegen.
<b>Teller:</b>	Het aantal klinische patiënten dat wordt ontslagen, en ervaart dat ze te vroeg ontslagen worden.
<b>Noemer:</b>	Het aantal klinische patiënten dat wordt ontslagen.
<b>Indicator 32:</b>	<b>Klinische patiënten die worden beperkt in het uitvoeren van transfers door meubilair.</b>
<b>Thema:</b>	Meubels.
<b>Item:</b>	Het gebruik van hoge bedden met bedrekken en stoelen die moeilijk bereikbaar zijn is van invloed op het bewegen van klinische patiënten.
<b>Teller:</b>	Het aantal opgenomen klinische patiënten, die beperkt worden in het zelfstandig uitvoeren van transfers door hoge bedden, hoge stoelen, of het gebruik van bijvoorbeeld bedrekken.
<b>Noemer:</b>	Het aantal opgenomen klinische patiënten.
<b>Indicator 33:</b>	<b>Klinische patiënten die de beschikking hebben over een geadviseerd loophulpmiddel.</b>
<b>Thema:</b>	Hulpmiddelen.
<b>Item:</b>	Er moeten voldoende loophulpmiddelen beschikbaar zijn om het bewegen van patiënten mogelijk te maken.
<b>Teller:</b>	Het aantal klinische patiënten per afdeling die beschikking hebben over een geadviseerd loophulpmiddel.
<b>Noemer:</b>	Het aantal klinische patiënten per afdeling, dat geadviseerd wordt te lopen met een loophulpmiddel.
<b>Indicator 34:</b>	<b>Klinische patiënten die beschikking hebben over een relax stoel.</b>
<b>Thema:</b>	Hulpmiddelen.
<b>Item:</b>	Er moeten voldoende relaxstoelen beschikbaar zijn om het bewegen van patiënten mogelijk te maken.
<b>Teller:</b>	Het aantal klinisch patiënten per afdeling die beschikking hebben over een relaxstoel.
<b>Noemer:</b>	Het aantal klinisch patiënten per afdeling.
<b>Indicator 35:</b>	<b>Klinische patiënten die beschikking hebben over een bedfiets.</b>
<b>Thema:</b>	Hulpmiddelen.
<b>Item:</b>	Er moeten voldoende bedfietsen beschikbaar zijn om het bewegen van patiënten

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3 mogelijk te maken.  
4 **Teller:** Het aantal klinisch patiënten per afdeling met het advies gebruik te maken van de  
5 bedfiets, die beschikking hebben over een bedfiets.  
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7 **Noemer:** Het aantal klinisch patiënten per afdeling, dat geadviseerd wordt gebruik te maken van  
8 een bedfiets.  
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10 **Indicator 36: Artsen die geschoold zijn in het aanbieden van bewegzorg bij klinische patiënten.**

11 **Thema:** Scholing.  
12 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
13 patiënten voor alle artsen medewerkers/zorgverleners die werkzaam zijn op de afdeling.  
14 **Teller:** Het aantal artsen dat scholing heeft gevolgd met betrekking tot het aanbieden van  
15 bewegzorg bij klinische patiënten.  
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17 **Noemer:** Het aantal artsen dat op de afdeling werkt.  
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19 **Indicator 37: Verpleegkundigen die geschoold zijn het aanbieden van bewegzorg bij klinische  
20 patiënten.**

21 **Thema:** Scholing.  
22 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
23 patiënten voor alle verpleegkundigen die werkzaam zijn op de afdeling.  
24 **Teller:** Het aantal verpleegkundigen dat scholing heeft gevolgd met betrekking tot het  
25 aanbieden van bewegzorg bij patiënten.  
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27 **Noemer:** Het aantal verpleegkundigen dat op de afdeling werkt.  
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29 **Indicator 38: Fysiotherapeuten die geschoold zijn in het aanbieden van bewegzorg bij klinische  
30 patiënten.**

31 **Thema:** Scholing.  
32 **Item:** Er wordt scholing aangeboden met betrekking tot het aanbieden van bewegzorg bij  
33 patiënten voor alle fysiotherapeuten die werkzaam zijn op de afdeling.  
34 **Teller:** Het aantal fysiotherapeuten dat scholing heeft gevolgd met betrekking tot het  
35 aanbieden van bewegzorg bij patiënten.  
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37 **Noemer:** Het aantal fysiotherapeuten dat op de afdeling werkt.  
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39 **Indicator 39: Artsen die geloven beweeggedrag te stimuleren bij patiënten.**

40 **Thema:** Mindset artsen.  
41 **Item:** De mindset van artsen draagt bij aan het motiveren, stimuleren en initiëren van  
42 beweeggedrag bij patiënten.  
43 **Teller:** Het aantal artsen per afdeling, die geloven dat ze beweeggedrag stimuleren bij  
44 patiënten.  
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46 **Noemer:** Het aantal artsen per afdeling.  
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48 **Indicator 40: Verpleegkundigen die geloven beweeggedrag te stimuleren bij patiënten.**

49 **Thema:** Mindset verpleegkundigen.  
50 **Item:** De mindset van verpleegkundigen draagt bij aan het motiveren, stimuleren en initiëren  
51 van beweeggedrag bij patiënten.  
52 **Teller:** Het aantal verpleegkundigen per afdeling, die geloven dat ze beweeggedrag stimuleren  
53 bij patiënten.  
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55 **Noemer:** Het aantal verpleegkundigen per afdeling.  
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57 **Indicator 41: Fysiotherapeuten die geloven beweeggedrag te stimuleren bij patiënten.**

58 **Thema:** Mindset fysiotherapeuten.  
59 **Item:** De mindset van fysiotherapeuten draagt bij aan het motiveren, stimuleren en initiëren  
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van beweggedrag bij patiënten.

**Teller:** Het aantal fysiotherapeuten per afdeling, die geloven dat ze beweggedrag stimuleren bij patiënten.

**Noemer:** Het aantal fysiotherapeuten per afdeling.

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**Indicator 42 Klinische patiënten die lopen met een vrijwilliger**

**Thema:** Vrijwilligers.

**Item:** Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met een vrijwilliger in het ziekenhuis.

**Teller:** Er is/zijn vrijwilliger(s) aanwezig op de afdeling die ondersteunen bij lopen.

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**Indicator 43 Klinische patiënten die lopen met familie.**

**Thema:** Familie.

**Item:** Klinische patiënten lopen zoveel mogelijk als zijn of haar conditie toelaat met familie in het ziekenhuis.

**Teller:** Er zijn familieleden aanwezig op de afdeling die ondersteunen bij lopen.

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**Indicator 44 Mobiliteit beperkende middelen worden dagelijks geëvalueerd.**

**Thema:** Evaluatie immobilisatie.

**Item:** Regelmatige evaluatie van de inzet van mobiliteit beperkende middelen bij klinische patiënten, zoals zuurstofslangen, blaas katheters en intraveneuze katheters.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van mobiliteit beperkende middelen bij klinische patiënten.

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**Indicator 45 Patiëntenmobiliteit is opgenomen in de normen van het ziekenhuis.**

**Thema:** Cultuur.

**Item:** De norm in het ziekenhuis is dat patiënten regelmatig lopen, als ze dat kunnen.

**Teller:** In de normen van het ziekenhuis staat beschreven dat er verwacht wordt dat patiënten regelmatig lopen als ze dat kunnen.

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**Indicator 46 Vrijheidsbeperkende middelen worden dagelijks geëvalueerd.**

**Thema:** Evaluatie immobilisatie.

**Item:** Er vindt regelmatig evaluatie plaats van de inzet van vrijheidsbeperkende middelen bij klinische patiënten, zoals buikband, vijf punt fixatie, rolstoelblad, rem van de rolstoel.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats over de inzet van vrijheidsbeperkende middelen bij klinische patiënten.

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**Indicator 47 Het ziekenhuis heeft een kritische houding ten aanzien van het inzetten van immobiliserende middelen bij valgevaarlijke patiënten.**

**Thema:** Cultuur.

**Item:** De norm van het ziekenhuis is een kritische houding te hebben ten aanzien van de inzet van immobiliserende middelen bij valgevaarlijke klinische patiënten.

**Teller:** In de normen van het ziekenhuis staat beschreven dat de inzet van immobiliserende middelen bij valgevaarlijke klinische patiënten kritisch wordt bekeken.

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**Indicator 48 De inzet van pijnstillende middelen wordt dagelijks geëvalueerd ten behoeve van het pijn vrij mobiliseren van de klinische patiënt.**

**Thema:** Evaluatie pijnmedicatie.

**Item:** Er vindt regelmatige evaluatie plaats van pijnmedicatie bij de klinische patiënt, ten behoeve van het bewegen.

**Teller:** Er vindt dagelijks per afdeling een evaluatie plaats van de inzet van pijnstillende middelen bij klinische patiënten, ten behoeve van het bewegen.

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3	<b><i>Indicator 49</i></b>	<b>Het informeren van de familie van de klinische patiënt ten aanzien van het belang van bewegen is een norm van het ziekenhuis.</b>
4		
5	<b>Thema:</b>	Cultuur.
6	<b>Item:</b>	De norm van het ziekenhuis is het informeren van de familie van de klinische patiënt ten
7		aanzien van het belang van bewegen.
8	<b>Teller:</b>	In de normen van het ziekenhuis staat beschreven dat de familie van de klinische patiënt
9		geïnformeerd wordt over het belang van bewegen.
10		
11		
12	<b><i>Indicator 50</i></b>	<b>Het aantal stappen dat een klinische patiënt loopt.</b>
13		
14	<b>Thema:</b>	Bewegen.
15	<b>Item:</b>	De totale hoeveelheid stappen die een klinische patiënt per dag loopt.
16	<b>Teller:</b>	Het aantal stappen dat een klinisch opgenomen patiënt loopt per dag.
17		
18	<b><i>Indicator 51</i></b>	<b>De klinische patiënt kan zich goed oriënteren in het ziekenhuis.</b>
19		
20	<b>Thema:</b>	Ziekenhuisomgeving.
21	<b>Item:</b>	De gebouwde ziekenhuisomgeving is van belang om desoriëntatie van de klinische
22		patiënt te voorkomen en mobilisatie te stimuleren.
23	<b>Teller:</b>	Er is gebruik gemaakt van oriënterende middelen, zoals looproutes en/of routewijzers,
24		ter ondersteuning van de oriëntatie van klinische patiënten.
25		
26	<b><i>Indicator 52</i></b>	<b>De klinische patiënt wordt gestimuleerd om te bewegen door de inrichting van de afdeling.</b>
27		
28	<b>Thema:</b>	Omgeving.
29	<b>Item:</b>	Aanwezigheid van foto's, kunst en/of ander beeldmateriaal om patiënten te stimuleren
30		om te bewegen.
31	<b>Teller:</b>	Is er gebruik gemaakt van foto's, kunst en/of ander beeldmateriaal op de wandelgangen
32		van de afdeling?
33		
34	<b><i>Indicator 53</i></b>	<b>De klinische patiënt heeft een beweegruijnte op de afdeling.</b>
35		
36	<b>Thema:</b>	Omgeving.
37	<b>Item:</b>	Aanwezigheid van een beweegruijnte.
38	<b>Teller:</b>	Is er een beweegruijnte aanwezig op de afdeling?
39		
40	<b><i>Indicator 54</i></b>	<b>De klinische patiënt heeft zonlicht op de patiëntenkamer.</b>
41		
42	<b>Thema:</b>	Omgeving.
43	<b>Item:</b>	Aanwezigheid van zonlicht op de patiëntenkamer.
44	<b>Teller:</b>	Is er zonlicht op de patiëntenkamer?
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Supplementary Table A4. Overview of ratings in the consensus rounds with the corresponding decision: selection, discussion, or no selection.

	First round		Second round		Third round	
<b>Theme: Exercise program and physical activity plan</b>	Median (%HT)	Decision	Median (%HT)	Decision	Median (%HT)	Decision
1. Patients without the need for support during mobilization should have a physical activity plan.	7 (79%)	D	8 (100%)	S		
2. Patients should receive support for mobilization.	8 (79%)	S				
3. Patients in need for support during mobilization should have a physical activity plan	8 (93%)	S	8 (60%)	D	8 (100%)	S
4. Patients should perform physical activities as described in their physical activity plan.	8 (86%)	S	8 (100%)	S		
6. Patients should be physically active within 48 hours after hospital admission.	8 (64%)	D	8 (100%)	S		
8. Patients with a physical disability should have an exercise program.	7 (71%)	D	6 (40%)	NS		

1  
2  
3 9. Patients who are dependent in 7 (64%) NS  
4  
5 activities of daily living should have  
6  
7 an exercise program.  
8  
9

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10 **Theme: Assistance during**  
11  
12 **mobilization**

13  
14  
15  
16 5. Patients should walk with a 8 (64%) D 4 (20%) NS  
17  
18 physical therapist.  
19

20  
21 10. Patients should be independent in 7 (64%) NS  
22  
23 activities of daily living at discharge.  
24

25  
26 42. Patients should walk with 7 (64%) NS  
27  
28 volunteers.  
29

30  
31 43. Patients should walk with close- 8 (86%) S 7 (100%) D 7 (60%) NS  
32  
33 relatives.  
34

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35  
36 **Theme: Mobilizing**

37  
38  
39 7. Patients should be physically active 8 (86%) S 8 (80%) S  
40  
41 within 48 hours after hospital  
42  
43 admission.  
44  
45

46  
47 11. Patients should mobilize 7 (64%) NS  
48  
49 independently at discharge.  
50

51  
52 50. The number of steps of a patient 6 (43%) NS  
53  
54 during hospital stay per day.  
55

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56  
57 **Theme: Attitude**  
58  
59  
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12. Physicians should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
13. Nurses should stimulate independent functioning in daily activities of patients.	8 (86%)	S	8 (80%)	S
14. Physical therapists should stimulate independent functioning in daily activities of patients.	6 (50%)	NS		
15. Physicians should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
16. Nurses should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	7 (57%)	NS		
17. Physical therapists should be aware of their own attitude related to stimulation of physical activity in patients during hospital stay.	6 (43%)	NS		
39. Physicians should stimulate physical activity of patients.	7 (71%)	D	8 (80%)	S

1  
2  
3 40. Nurses should stimulate physical 8 (86%) S 8 (80%) S  
4  
5 activity of patients.  
6  
7

8 41. Physical therapists should 7 (72%) D 6 (40%) NS  
9  
10 stimulate physical activity of patients.  
11  
12

13 **Theme: Use of restraints**  
14

15  
16 18. The number of patients with 7 (71%) D 6 (40%) NS  
17  
18 mobility limiting equipment.  
19  
20

21 44. Nurses should evaluate freedom 8 (71%) S 8 (100%) S  
22  
23 limiting equipment.  
24  
25

26 46. Nurses should evaluate mobility 8 (79%) S  
27  
28 limiting equipment.  
29  
30

31 47. The hospital (ward) should have a 8 (79%) S 8 (60%) D 7 (80%) D  
32  
33 policy to minimize the use of mobility  
34  
35 limiting equipment in patients at risk  
36  
37 of falling.  
38  
39  
40

41 48. Patients should have an 8 (79%) S 8 (60%) D 8 (80%) S  
42  
43 acceptable degree of pain.  
44  
45  
46

47 **Theme: Fall incident**  
48

49 19. Patients should be evaluated after 8 (71%) S  
50  
51 a fall incident.  
52  
53

54 20. The number of documented fall 8 (57%) D 5 (0%) NS  
55  
56 incidents.  
57  
58  
59  
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**Theme: Documentation**


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21. Nurses or physical therapists 8 (93%) S 8 (100%) S

should evaluate the preadmission  
physical ability.

22. Nurses or physical therapists 8 (79%) S 8 (100%) S

should evaluate the mobility.

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**Theme: Providing information**


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23. Close-relatives of patients should 7 (79%) D 8 (80%) S

be informed about the importance of  
physical activity.

24. Patients should be informed 8 (71%) S

about the importance of physical  
activity.

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**Theme: Bed rest**


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25. Physicians should consider bed 6 (50%) NS

rest as an abnormal medical  
procedure.

26. Nurses should consider bed rest 6 (50%) NS

as an abnormal procedure.

27. Physical therapists should 6 (29%) NS

consider bed rest as an abnormal  
procedure.

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1  
2  
3 28. The number of patients with bed 6 (50%) NS 7 (60%) NS  
4  
5 rest without medical urgency.  
6  
7

8 **Theme: Education**  
9

10  
11 29. The number of lower educated 2 (0%) NS  
12  
13 healthcare providers.  
14  
15

16 36. Physicians should have followed 7 (71%) D 7 (60%) NS  
17  
18 education related to physical activity  
19  
20 of patients.  
21  
22

23 37. Nurses should have followed 7 (86%) D 8 (80%) S  
24  
25 education related to physical activity  
26  
27 of patients.  
28  
29

30 38. Physical therapists should have 7 (64%) NS  
31  
32 followed education related to  
33  
34 physical activity of patients.  
35  
36  
37

38 **Theme: Work pressure**  
39

40  
41 30. Nurses should be aware of work 8 (79%) S 7 (100%) D 7 (100%) D  
42  
43 pressure being a limiting factor for  
44  
45 physical activity in patients.  
46  
47

48 31. The number of patients who 5 (29%) NS  
49  
50 experience to be discharged too  
51  
52 early.  
53  
54

55 **Theme: Environment**  
56  
57  
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32. Hospital rooms should be equipped with adequate furniture to improve physical activity.	7 (71%)	D	7 (80%)	D	7 (80%)	D
51. The hospital (ward) has orientation promoting resources.	7 (57%)	NS	7 (100%)	D	8 (100%)	S
52. The hospital (ward) provides adequate resources to stimulate physical activity.	8 (86%)	S	8 (100%)	S		
53. Patients should have access to a movement room.	8 (79%)	S	7 (60%)	NS		
54. Patients should have sunlight in their hospital room.	7 (64%)	NS				
<b>Theme: Aids for mobilization</b>						
33. Patients should have adequate walking aids.	8 (86%)	S				
34. Patients should have comfortable chairs.	8 (79%)	S	6 (40%)	NS		
35. Patients should have access to ergometers.	4 (28%)	NS				
<b>Theme: Culture</b>						
45. The hospital (ward) should have a policy to improve physical activity of	8 (86%)	S	8 (100%)	S		

1  
2  
3 patients.  
4  
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6 49. The hospital (ward) should have a 8 (79%) S 8 (80%) S  
7

8 policy to inform close-relatives about  
9

10 physical activity.  
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13 *Abbreviations: %HT, percentage in highest tertile; D, discussion; NS, no selection; S, selection*  
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Supplementary Figure A1. Flow diagram of study selection.

