The Quality of Geriatric Rehabilitation Care

The development of indicators to measure the quality of care

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PARVIEW

DE KRACHT ACHTER VERANDERING

UNIVERSITY OF TWENTE.

Preface

This thesis focusses on the development of quality indicators for geriatric rehabilitation care. Quality of healthcare always had my interest during my Health Sciences study at the University of Twente. With this study, I hope to contribute to the quality of geriatric rehabilitation care in The Netherlands. Initially, my aim was to develop subjects for quality indicators solely. However, during first phase of this study I visited several facilities that provide geriatric rehabilitation care and the annual geriatric rehabilitation conference to acquire more knowledge about this type of care. I also joined the GRZ Ecademy, that aims at sharing knowledge about geriatric rehabilitation care. During these visits and meetings, I spoke to a lot of professionals who work in geriatric rehabilitation care and they all emphasized the need for quality indicators for geriatric rehabilitation care. Therefore, I decided to expand my study and to develop quality indicators that can be used within geriatric rehabilitation care. This expansion required more time and effort, and in combination with writing a master thesis for the study Business Administration, this study took a year and a half to complete.

This study was performed to complete my Health Sciences study at the University of Twente. I would like to thank my supervisors from the University of Twente, Anke Lenferink, Jeanette van Manen, Sabine Siesling, and Ria Wolkorte, for their help and feedback throughout the entire process. I conducted this research on behalf of ParView. I would like to thank Viola Zevenhuizen for this opportunity, her help and trust in me, I learned a lot.

Furthermore, many people are appreciated for the data collection process. All healthcare professionals that I was allowed to interview, and also all respondents that took the effort to complete the questionnaire. Thank you very much.

I would also like to express my gratitude to my family, friends and partner. You all motivated me and your support was immense, thank you all so much.

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Wijhe, March 2021

Abstract

Background

As in other types of care, quality of care is an essential aspect of geriatric rehabilitation care. Good quality of healthcare improves the desired health outcomes of geriatric patients. Usually, there are national standards for the quality of care, which healthcare providers must meet or indicators to measure the quality of care. Nevertheless, this is not the case for geriatric rehabilitation care, since there was no command from the government yet and there were no financial resources. Therefore, this paper aims at developing structure, process, and outcome indicators to measure the quality of geriatric rehabilitation care. Measuring the quality of geriatric rehabilitation care comes with several purposes. The most important reason for measuring quality is that it could lead to the improvement of the quality of geriatric rehabilitation care. Additionally, outcomes could be benchmarked with the outcomes of other providers of geriatric rehabilitation care. When there are significant differences in the outcomes of care, the healthcare providers could try to identify the source that causes the differences, and whenever possible, try to adopt best practices from each other. Another benefit is that the outcomes could provide information for patients. They could use this information to choose the provider of geriatric rehabilitation care that best fits their needs. Also, healthcare insurers could use the outcomes in the process of contracting providers of geriatric rehabilitation care. In this way, healthcare insurers could force providers of geriatric rehabilitation care to fulfil several quality standards.

Methods

To develop quality indicators for geriatric rehabilitation care, first a literature search was performed to identify indicators for other types of rehabilitation care which can also be suitable for geriatric rehabilitation care. Thereafter a qualitative phase was performed, in which two nurses, two doctors specialised in geriatric rehabilitation care, two managers of geriatric rehabilitation facilities, and two different healthcare insurers were interviewed. First the qualitative data was labelled using open coding. Thereafter the labels were divided into categories using axial coding. Selective coding was used to create core categories. Labels that were suitable were translated into structure, process, and outcome quality indicators for geriatric rehabilitation care. Indicators from the literature and indicators that were developed based on the interviews were merged and processed in a questionnaire. Through this questionnaire, geriatric doctors and managers of geriatric rehabilitation facilities were asked to rate the indicators on relevance and feasibility. Indicators that were considered

as relevant and feasible by 70% of the respondents or more are included in the final quality indicator set for geriatric rehabilitation care.

Results

36 indicators that are suitable for geriatric rehabilitation care were identified from the literature. Additionally, 55 quality indicators were developed based on the interviews. Merging the indicators from the literature and the indicators from the interviews and omitting duplicates resulted in a set of 69 quality indicators that were processed in the questionnaire. Analysis of the quantitative data resulted in a final set of 27 quality indicators for geriatric rehabilitation care that consist of 17 structure, 8 process, and 2 outcome indicators. Herewith the aim of the study was achieved.

Discussion

This study contributes to the existing literature of geriatric rehabilitation care by providing a first set of quality indicators for geriatric rehabilitation care. Nurses, managers, geriatric doctors, and healthcare insurers were included in this study. Including different stakeholders is a strength of this study since all stakeholders have different opinions concerning the quality of geriatric rehabilitation care and herewith different point of views were considered. Using a questionnaire, the indicators in the final set of quality indicators for geriatric rehabilitation care were assessed on relevance and feasibility by different experts of geriatric rehabilitation care. Taken this relevance and feasibility into consideration is another strength of this study. Follow-up research can include a Delphi study in which the consensus among healthcare professionals about the quality indicators is investigated. Follow-up research can also include an assessment of the reliability and validity of the developed indicator set. The developed quality indicator set for geriatric rehabilitation care can be used in practice, keeping the lack of evidence about the reliability and validity in mind.

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1. Introduction

The population of people living in The Netherlands is ageing. In 1990 there were 1.9 million inhabitants of 65 years and older in The Netherlands. In 2019, this number increased to over three million [1]. The expectation is that there are almost five million people of 65 years and older in the Netherlands by 2050 [1]. An ageing population is associated with an increase in multimorbidity and geriatric syndromes such as impaired cognition, frailty, gait and balance problems, which leads to an increased risk of disabilities [2-4]. Additionally, patients with multimorbidity and geriatric syndromes are more likely to get hospitalised [5]. Forty per cent of the frail and older persons (>70 years) are hospitalised at some moment [5,6]. After hospitalisation, 11% of those older persons are referred to a geriatric rehabilitation facility [7]. In 2018, 52.000 patients were treated in a geriatric rehabilitation facility in The Netherlands [8]. Currently, 146 healthcare organisations in the Netherlands provide geriatric rehabilitation care.

Geriatric rehabilitation is a sophisticated type of care that is provided in skilled nursing facilities. It is defined as a multidisciplinary set of evaluative, diagnostic and therapeutic interventions with the purpose to restore functioning or enhance residual functional capability in older people with disabling impairments [9]. The primary goal of geriatric rehabilitation is that patients return to their home situation; on average, 73% of the geriatric patients accomplish this goal. If this is not possible, other options regarding follow-up care will be taken into consideration. Follow-up care can include, for example, admission to a nursing home or hospice. [10,17] Patients are often referred to a geriatric rehabilitation facility from the hospital, but it is also possible that patients enter into a geriatric rehabilitation facility from their home situation. In order to define if patients are qualified for geriatric rehabilitation care, triage by a geriatrician will be performed preliminary to the intake at the facility. Five different diagnosis groups of geriatric rehabilitation can be distinguished: cerebrovascular accident, elective orthopedics, trauma, amputations, and a miscellaneous group for other diagnoses, for instance, heart failure or chronic obstructive pulmonary disease. Geriatric rehabilitation care is complex and many care professionals are involved in the care process since patients have different diseases, conditions, and symptoms and therefore different needs regarding treatment. The elderly care physician is often the principal of the rehabilitation team. Other members usually include the nursing staff, physiotherapist, psychologist, social worker, speech therapist, occupational therapist, and dietician.

As in other types of care, quality of care is an essential aspect of geriatric rehabilitation care. Quality is an assessment of whether geriatric rehabilitation is suitable for its purpose. Good quality of healthcare improves the desired health outcomes of geriatric patients. [14] The Institute of Medicine

mentions six quality domains that healthcare should meet: safe, effective, efficient, timely, patient-centered, and equitable [14]. To judge whether the quality of geriatric rehabilitation care is sufficient based on these domains, quality criteria and tools to measure the quality can be used. Usually, there are national standards for the quality of care, which care providers must meet or indicators to measure the quality of care. Nevertheless, this is not the case for geriatric rehabilitation care, since there was no command from the government yet and there were no financial resources [11]. Measuring the quality of geriatric rehabilitation care comes with several purposes. The most important reason for measuring quality is that it could lead to the improvement of the quality of geriatric rehabilitation care. Within a geriatric rehabilitation facility, quality improvement goals for the future can be made based on the current performance, and the effects of improvement initiatives can be monitored. Additionally, the outcomes such as average length of stay, mortality, and therapy time could be benchmarked with the outcomes of other providers of geriatric rehabilitation care. When there are significant differences in the outcomes of care, the healthcare providers could try to identify the source that causes the differences, and whenever possible, try to adopt best practices from each other. Another benefit is that the outcomes could provide information for patients. They could use this information to choose the provider of geriatric rehabilitation care that best fits their needs. Also, healthcare insurers could use the outcomes in the process of contracting providers of geriatric rehabilitation care. In this way, healthcare insurers could force providers of geriatric rehabilitation care to fulfil several quality standards. [16] Without this information about the quality of care, market forces could lead to competition on price alone and herewith in a decrease in the quality of care [18].

In conclusion, quality is an essential aspect of healthcare and measuring the quality of care can lead to several benefits for geriatric rehabilitation care. Since there are no indicators to measure the quality of geriatric rehabilitation care yet, this paper aims to develop indicators to measure the quality of geriatric rehabilitation care. In order to do so, two research questions are formulated. The first question is: *What aspects and outcomes of geriatric rehabilitation care are regarded as possible indicators of quality of care according to doctors, nurses, managers, and healthcare insurers who are affiliated with geriatric rehabilitation care?* The second research question is: '*Which of the developed quality indicators for geriatric rehabilitation care are assessed as relevant and feasible by organisations that provide geriatric rehabilitation care?*'

2. Theoretical framework

2.1 Quality of care

Quality is a broad and abstract concept that is dependent on predetermined norms and requirements [13]. There are many definitions of quality of care. The World Health Organisation defines the quality of care as 'the extent to which healthcare services provided to individuals and patient populations improve desired health outcomes' [14]. The Institute of Medicine classified and unified several components of quality of care through six dimensions. These dimensions can be viewed as rules for redesigning healthcare, and are therefore essential to consider when quality indicators for geriatric rehabilitation care are formulated. According to the Institute of Medicine, healthcare should be: 1) safe; care should be as safe in healthcare facilities as in the home of patients, harm to patients should be avoided 2) effective; care should be delivered based on evidence-based medicine and according to best practices, underuse and misuse of care should be avoided 3) efficient; care and provided services should be cost-effective, and waste should be removed from the system 4) timely; waits and delays when receiving or providing service should be removed for both those who receive care and those who provide care. 5) patient-centred; care should be organised around the patient, respecting the patient preferences, and the patient should be in control 6) equitable; all patients should be treated equally, disparities in care should be eradicated. [14]

2.2 Indicators

Information about performance is needed to evaluate the quality of geriatric rehabilitation care. Measurements can provide organisations that deliver geriatric rehabilitation care the necessary data. An indicator is an instrument to perform measurements and as a result of this helps organisations to assess the quality of care. Indicators can give organisations a direction and provide information about the status of the quality. Indicators also inform organisations on which aspects the quality of care can be improved. Colsen and Casparie [15] define an indicator as 'a measurable aspect of care that indicates the quality of care'. Some examples of indicators are the waiting time before treatment, the percentage of mortality, or the percentage of patients with decubitus in a nursing home. Colson and Casparie [15] and Mainz [16] mention several characteristics that indicators must meet. The first characteristic is that an indicator has to represent differences in the quality of care. This means that indicators can be discriminating, and present quality differences among organisations that provide geriatric rehabilitation care. The second aspect is that the registration of indicators has to be reliable, which means that every organisation that provides geriatric rehabilitation care measures the same

aspect in the same way. To assure this, the quality indicator has to be formulated very specifically. An indicator should also be feasible, which means that organisations that provide geriatric rehabilitation care are able to measure the aspect that is intended to be measured and can apply the indicator in practice. For example, when a quality indicator aims at measuring the improvement in the Barthel score of a patient, the indicator is feasible if the Barthel score is available or can be made available. The last aspect is that the quality indicator has to be valid. An indicator is valid when the indicator measures accurately and when the outcomes closely correspond to real-world values. [15,16]

An indicator is often expressed in a numerator and denominator. The numerator is the number of the population that meets the criteria of the indicator. The numerator is the top number of the ratio that is calculated. The bottom number of the ratio is the denominator. This is the total number of the population that meets predetermined criteria. When, for example, the percentage mortality of geriatric patients within an organisation in the year 2019 is calculated, the numerator is the total number of geriatric patients that passed away within the organisation in 2019. The denominator is the total number of geriatric patients that are treated within the organisation in 2019. The numerator and denominator must be precisely defined with inclusion and exclusion criteria, to assure that the outcome is reliable and valid. When this is not accurately done, organisations can interpret the numerator and denominator different, which can result in distorted outcomes and the impossibility of comparing outcomes. The outcome of an indicator is often a percentage. It is possible to connect a norm or standard to the outcome of the indicator. Whenever the outcome is situated within the burdens of the norm or standard, the quality of the measured aspect can be regarded as sufficient. [31]

Indicators are based on standards of healthcare. Typically, well-designed indicators are developed based on academic literature that indicates which factors influence the quality of healthcare. However, for some types of healthcare there are no standards or best practices available, which is also the case for geriatric rehabilitation care. In this case, indicators can be developed based on consensus using an expert panel or consensus process [16,18]. Indicators that are developed based on consensus can result in more variation in outcomes. When the existence of this variation is considered during the benchmark of outcomes, this variation can be used to identify best practices. These best practices could form a foundation for standards of standards and guidelines, which helps to improve the quality of healthcare.

2.3 Classification of indicators

Indicators are often classified in terms of one of three measures: structure, process, or outcome. These measures often form the foundation for the development of indicators to measure the quality of care. [19]

Structure indicators concern the characteristics of the setting in which geriatric rehabilitation care is delivered or the characteristics of the professionals who provide care. Examples of these structural characteristics are certification, education and training of the professionals who deliver geriatric rehabilitation care. Also, the overall organisation, equipment and staffing of the facility are examples of structure indicators. When the quality of geriatric rehabilitation care is assessed using structural indicators, the assumption is made that well-qualified people, working in well-appointed and well-organised environments deliver high-quality healthcare. Thus a good structure leads to higher quality. However, according to Donabedian this assumption is not always guaranteed. [19,20]

Process indicators evaluate the quality of geriatric rehabilitation care based on the series of actions that take place during the delivery of care. Using process indicators, the quality of geriatric rehabilitation care can be evaluated based on three aspects; appropriateness, skill, and timeliness of the care. Appropriateness identifies whether the right actions were taken within the care process of geriatric rehabilitation patients. Skill determines if the actions within the care process of geriatric rehabilitation patients were carried out with sufficient proficiency. Timeliness determines if the actions during the care process were carried out in time. The key assumption within process indicators is that if the right things are done right, good outcomes of care are more likely to be achieved. [19]

Outcome indicators measure whether the predetermined objectives of geriatric rehabilitation care were achieved. Objectives in healthcare can be broadly defined. Therefore outcome indicators should comprise different aspects of geriatric rehabilitation care, for example, the patients' satisfaction about the received care, readmission, complications, and the costs of healthcare. [21] Outcome indicators could also include technical aspects of care. These technical aspects often refer to measures of health status, such as whether the patient regained full function or whether the patients' pain prolapsed. [22] However, these outcome measures of health status do not always depict the quality of geriatric rehabilitation care precise. Providers of geriatric rehabilitation care could control the process of healthcare delivery, but they do not influence environmental or genetic factors. For example, one patient could receive the best possible care but does not have any functional improvement, whereas other patients receive inappropriate care and regain full health. [19]

3. Method

3.1 Study Design

This study aims to develop structure, process, and outcome indicators to measure the quality of geriatric rehabilitation care. First a **literature search** was performed to identify already existing indicators for other types of rehabilitation care, which are possible applicable to geriatric rehabilitation care.

Second, a **qualitative study** design was applied. Different healthcare professionals were individually interviewed using semi-structured interviews in order to explore if additional indicators that were not found in the literature could be identified. The indicators that were identified from the literature were not shared with the interviewees. The interviews aimed to identify which quality aspects of geriatric rehabilitation care are considered as essential by healthcare professionals by asking them about their opinion regarding quality in geriatric rehabilitation care. These aspects were translated into quality indicators using open coding, axial coding, and selective coding techniques. This answered the research question '*What aspects and outcomes of geriatric rehabilitation care are regarded as possible indicators of quality of care according to doctors, nurses, managers, and healthcare insurers who are affiliated with geriatric rehabilitation care?*'

The last part of this study is a **quantitative research**. The sets with indicators from the literature and qualitative research were merged and submitted to managers and geriatric doctors of organisations that provide geriatric rehabilitation care. These respondents rated the different quality indicators on relevance and feasibility. This resulted in a list of structure, process, and outcome indicators to assess the quality of geriatric rehabilitation care which answers the research question '*Which of the developed quality indicators for geriatric rehabilitation care are assessed as relevant and feasible by organisations that provide geriatric rehabilitation care?*'

3.2 Study population

Qualitative research

Nurses, managers, geriatric doctors, and healthcare insurers who are involved in the care process of patients in geriatric rehabilitation facilities were interviewed in order to identify different quality indicators. The population of nurses, managers, and geriatric doctors was selected with purposive sampling at Noorderbreedte and PZC Dordrecht. Noorderbreedte is an organisation that provides geriatric rehabilitation care that is located at Leeuwarden. Noorderbreedte treats different diagnosis groups (cerebrovascular accident, neurology, orthopaedics, trauma, amputation, chronic obstructive pulmonary disease, cardiology, intensive wound care, and intravenous drip therapy) and has one

hundred beds available. Since this organisation can be regarded as a large organisation in comparison with other organisations that provide geriatric rehabilitation care, this organisation is purposefully selected. PZC Dordrecht is an organisation that provides geriatric rehabilitation care and is located in Dordrecht. PZC Dordrecht treats all diagnosis groups, but is specialised in cerebrovascular accident and Parkinson. PZC Dordrecht has thirty beds available for geriatric rehabilitation patients. This organisation was purposefully selected since it considers the quality of care as important. Respondents for the interviews were selected by contacting the manager of the concerning organisation. If the manager agreed with the participation in this research, the manager was requested to provide contact details of a nurse and geriatric doctor that are suitable for participating in an interview about the quality of care. A nurse or geriatric doctor is regarded as suitable if the manager expects them to have an affinity with quality of care. Additionally, the geriatric doctor and nurse are suitable if they are presumably willing to participate in an interview and are sufficient verbally adequate. The nurse and geriatric doctor were contacted through e-mail or telephone.

The healthcare insurers that were included wished to stay anonymous. Insurer one has more than 3 million customers and can be regarded as a large insurer. Insurer two has more than 2 million customers and can, therefore, also be seen as a large insurer. The two healthcare insurers are purposefully selected since these two healthcare insurers consider the quality of care as very important. The insurers demand from their healthcare providers that they fulfil several quality standards. To select respondents from the healthcare insurers, the insurers were contacted through e-mail. Contact details of the person that is responsible for geriatric rehabilitation care were requested.

After the first four interviews with different healthcare professionals, the transcripts were analysed before conducting other interviews. During the last four interviews, no new categories emerged, therefore no additional interviews were necessary, since there was a code saturation [36].

Quantitative research

The questionnaire with quality indicators was sent to healthcare organisations that provide geriatric rehabilitation care. All 146 healthcare organisations that provide geriatric rehabilitation care in the Netherlands were approached to participate in this study. Contact details of the manager and geriatric doctor of the organisation were provided by ParView. When there were no contact details known of a certain organisation or the contact details were outdated, the secretary of the concerning organisation was contacted.

3.3 Data collection

Literature review

Using Scopus, PubMed, and Google Scholar, literature about measuring the quality of care and indicators for rehabilitation care was searched. The search terms 'geriatric rehabilitation', 'quality geriatric rehabilitation', 'indicators geriatric rehabilitation', 'indicators rehabilitation care', 'quality rehabilitation care', 'effectivity rehabilitation elderly', 'effectivity rehabilitation geriatric' were used. The distinction was made on indicators that can be applied to geriatric rehabilitation care and indicators that are not suitable for geriatric rehabilitation care. Indicators were regarded as not suitable if they relate to something that does not apply to geriatric rehabilitation care, or if something is not possible to measure in geriatric rehabilitation care.

Qualitative research

The interviews were conducted with video calls using the application Skype, Teams, or Zoom, dependent of the preference of the interviewee. Before the interview started, the respondent was informed about the research and the aim of the interview. The respondent was also asked if there were any objections at recording the interview for analysis purpose. If the respondent agreed, the interview started. During the interviews, an interview scheme (Appendix 1) was used to assure that predetermined topics would be discussed. The interviews started with a conversation related to personal characteristics of the respondent in order to build trust and make the respondents feel comfortable [29]. The first question was a general question about the perception of the respondent about the quality of geriatric rehabilitation care. After that, the tasks of the respondent regarding the daily care for geriatric rehabilitation patients were discussed. The topics that were identified from the literature and which are used for the classification of indicators in table 1, were used to assure that all quality aspects of geriatric rehabilitation care were discussed.

Quantitative research

The questionnaire was online conducted using Qualtrics. Structure, process, and outcome indicators from the literature and interviews were combined and processed in the questionnaire. Using a nine-point Likert scale, respondents were asked to criticize the level of agreement per indicator regarding the relevance and feasibility. An indicator was relevant when the indicator reflects the quality of geriatric rehabilitation care, and the healthcare provider can influence the outcome of the indicator. An indicator was feasible when the required data is available or can be made available, and when the required time and effort to collect the data is acceptable. These two aspects are formulated based on the aspects that good quality indicators should meet, described in the theoretical framework. Since it

was important that respondents were sufficiently informed about the background of this study, a document with this information was send along with the questionnaire. Additionally, this document included a guideline with information about how to fill in the questionnaire and a definition of relevance and feasibility. Also, an explanation about the difference between structure, process, and outcome indicators was provided. This document can be found in Appendix 2.

3.4 Data analysis

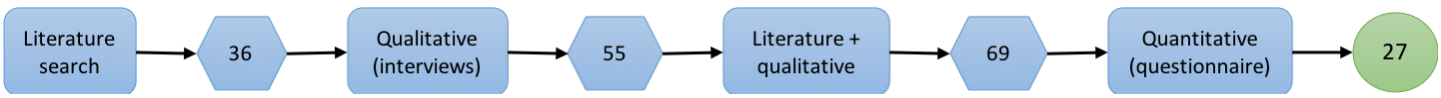
Qualitative research

The data analysis started with transcribing the audio records of the interviews by hand. The interviews were transcribed entirely, only fillers and repeated words were removed since they impeded the readability of the transcripts and were not relevant to interpret the data [30]. To ensure anonymity, the names of organisations or persons were removed from the transcripts and replaced with the letter X. When the transcripts were completed, they were printed and analysed by the researcher using colour markers. The first step was open coding, all useful information in the transcripts received a comprehensive label indicating the content of the information. All information related to quality of geriatric rehabilitation care was regarded as useful. The open coding phase resulted in 123 different labels. The second step was axial coding; all labels were grouped into different categories. This resulted in a list of 32 different categories. The last step was selective coding. During this step, the categories from the axial coding phase were connected around one core category. These core categories were based on the categorization of indicators in table 1, a few core categories were added. Based on labels attached to the different categories, quality indicators for geriatric rehabilitation care were developed. When it was possible to compose an indicator, the concerned label was transformed into a structure, process, or outcome indicator. This phase of indicator development was performed by the researcher in consultation with an expert in geriatric rehabilitation care. This expert is consultant and interim manager/director with profound experience and knowledge within geriatric rehabilitation care. After the development of quality indicators based on the interviews, the indicators were combined with indicators that were identified from the literature. There were some similarities in the indicators that were extracted from the literature and indicators that were developed during the qualitative part of this study, these similarities were merged. Figure 1 provides an oversight of the number of indicators that were identified from the literature, developed during the qualitative part of this study, and the number of indicators after merging the similarities of the literature review and qualitative part.

Quantitative research

The data collected from questionnaires were imported from Qualtrics into SPSS. The answers of respondents that started the questionnaire but did not complete the entire questionnaire were included in the data analysis. The respondents that answered the first two questions (occupation and organisation were they work for) only were excluded from the data analysis. Per quality indicator the total number of respondents that judged the indicator was defined using descriptive statistics. Thereafter, an analysis (numbers, percentages, median) per indicator was performed to define how the different respondents rated the indicators based on relevance and feasibility. Per answer option (one to nine) the number of respondents that rated each indicator was defined. Also, a percentage of respondents that rated the relevance and feasibility in the highest tertile (seven, eight, or nine) was calculated. Based on this information, the decision was made whether to select or reject the indicator. When the median of relevance and the median of feasibility was seven or higher, and the percentage of respondents that assessed the indicator as relevant and feasible was 70% or higher, the indicator was considered as appropriate and was selected for the final set of quality indicators for geriatric rehabilitation care. This cut-off point of 70% was set by the researcher and the earlier mentioned expert in geriatric rehabilitation care. The final results on the selection of every quality indicator can be found in Appendix 5. The final number of quality indicators for geriatric rehabilitation care after the quantitative part of this study can be found in figure 1. When a process indicator was considered as relevant by 70% or more of the respondents, but less than 70% of the respondents thought that the indicator was feasible, the indicator was transformed into a structure indicator if possible since structure indicators are more feasible to answer. These indicators can be found in Appendix 6.

Figure 1 Process of indicator development[1]



[1] The rectangles signify the different development phases of quality indicators for geriatric rehabilitation care. The numbers in the hexagons indicate the number of indicators that emerged from the concerning development phase. The number in the green circle signifies the final number of quality indicators for geriatric rehabilitation care.

4. Results

This chapter is divided into three paragraphs. The first paragraph presents the results of the literature search. The second paragraph provides the results of the qualitative part from the interviews. The quantitative results with the final set of quality indicators are given in paragraph three.

4.1 Results review of the literature

Indicators of other types of (rehabilitation) care that can be applicable to geriatric rehabilitation care were identified from the literature. These indicators were assessed on suitability for geriatric rehabilitation care. Indicators were not regarded as suitable if they relate to something that does not apply to geriatric rehabilitation care, or if something is not possible to measure or applicable to geriatric rehabilitation care. Table 5 in Appendix 3 presents these indicators, in which the distinction is made between indicators that are suitable and indicators that are not suitable for geriatric rehabilitation care. The indicators that are suitable for geriatric rehabilitation care are divided into structure, process, and outcome indicators and further grouped into 1) General 2) Therapeutic treatment, patient care, and patient education indicators 3) Medical-technical equipment indicators 4) Internal quality management indicators 5) Staffing indicators [24]. These indicators are presented in table 1.

Table 1 Indicators from the literature that are suitable for geriatric rehabilitation care

Structure	**Process**	**Outcome**
General indicators		
Defined patient target group	Number of patients per diagnosis group	Percentage of adverse events
Work agreements about assessment of allergies and hypersensitivity of patients		
Therapeutic treatment, patient care, and patient education indicators		
An individual multidisciplinary rehabilitation plan for each patient	Average length of stay per diagnosis group	Percentage of patients with improvement in physical, psychological, or social function
Participation of patients in development of treatment plan	Percentage of patients that had medication verification at admission	Percentage of patients that is satisfied or very satisfied with rehabilitation
Functional assessment at admission and discharge	Percentage of patients that had medication verification at discharge	Percentage of patients that reached important goals

Regular team meetings with patients	Percentage of patients that is screened on malnutrition at admission	
Medication verification at admission and discharge	Average number of days before there is a rehabilitation plan	Percentage of patients with complications
Enriched rehabilitation environment	Average therapy time per patient per diagnosis group	Percentage of patients per diagnosis group that is discharged to their home situation
Specialised wards units for different diagnosis groups		Percentage of refused patients due to occupied beds
Screening on malnutrition at admission		Percentage of mortality
Participation of patients in setting rehabilitation goals		Percentage of patients with unplanned interruption of rehabilitation plan
		Average functional improvement per diagnosis group
Medical-technical equipment indicators		
Use of validated assessment instruments		
Prescription of medication using an electric prescription system		
Internal quality management indicators		
Registration and evaluation of adverse events		
Inpatient deaths are assessed through internal audit		
Systematic evaluation of +complications		
Measurement of patient satisfaction		
Staffing indicators		
Minimum number of qualified personnel present		
Education of staff		

4.2 Qualitative results

For the qualitative part of this research two nurses, two managers, and two geriatric doctors of two different organisations that provide geriatric rehabilitation care were interviewed. Also, two experts from two different healthcare insurers were interviewed. During these interviews, the interviewees were asked about their opinion about and experience with the quality of geriatric rehabilitation care. The used interview schemes can be found in Appendix 1.

The audio records of the interviews were transcribed. The first open coding phase of the transcripts resulted in 123 different labels that contained information concerning the quality of geriatric rehabilitation care. During the second coding phase, 30 categories were created based on the labels. During the last coding phase, the 30 different categories were attached to seven core categories. The categories and labels can be found in table 7, Appendix 4.

There are a few important labels, which (almost) all interviewees (N=7 or 8) mentioned during the interviews. The first important label is *Involving informal caregivers in the rehabilitation process is important.* A corresponding quote from respondent one is: ''*We are constantly identifying how the family can stay involved''.* Respondent three mentioned: ''*Involving family is extremely important, you cannot do it without them.''* The label *Needs and wishes of the patient must be included in the treatment plan* is mentioned by all interviewees during the interviews. Another important label is *Level five or six nurses must be active in geriatric rehabilitation care.* Respondent five said: *''There should be standard a level five or six nurse present, considering the past ten years, we see a lot more sick, unstable patients.''* The last important label is *E-health can contribute to the quality of geriatric rehabilitation care.* Respondent two: ''*E-Health can play a huge role within geriatric rehabilitation care, and can promote the quality of care.''*

Based on the labels that were suitable for development of quality indicators, 55 different quality indicators for the geriatric rehabilitation care were developed. These labels and indicators are presented in table 2. 28 structure, 25 process, and 2 outcome indicators were developed during this phase.

Table 2 Quality indicators developed based on qualitative results[2]

Category	Label	N	Quality indicator
Discharge	Informal caregivers must be prepared for the patient's discharge	5	Process: % of patients whose informal caregivers felt sufficiently prepared for the patient's discharge (number of patients whose informal caregivers felt

[2] Quality indicators for geriatric rehabilitation care based on the qualitative part of this study. Foundation for the categories (column one) and labels (column two) are eight interviews with different experts in geriatric rehabilitation care. Column three indicates the number of respondents that mentioned the concerning label during the interview. The indicators in column four are developed based on the labels in column two.

			sufficiently prepared for the patient's discharge / total number of patients)
	In the event of an impending discharge, everything must be settled to return home	1	Process: % patients whose transition to home did not go well due to insufficient preparation (number of patients whose transition to home did not go well due to insufficient preparation / total number of patients)
	Patients should be informed about the discharge criteria at admission	1	Process: % patients where the discharge criteria were discussed at admission (number of patients where the discharge criteria were discussed at admission / total number of patients)
Informal caregivers (and the rehabilitation process)	Involving informal caregivers in the rehabilitation process is important	7	Process: % of patients whose informal caregivers are involved in the rehabilitation process (number of patients whose informal caregivers are involved in the rehabilitation process / total number of patients)
	Informal caregivers should be present at the intake conversation	4	Process: % admission conversations where informal caregivers of the patient were present (number of admission conversations where informal caregivers of the patient were present / total number of admission conversations)
	Family members make it possible for the patient to return home	5	Structure: An inventory was made at admission to determine whether informal caregivers are able to support the patient at home after discharge
	Informal caregivers must be involved in the treatment	4	Process: % of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist (number of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist / total number of patients)
Progress interview	The progress interview takes place every two weeks	2	Process: Number of progress interviews during the admission of the patient (number of progress interviews / time period = 2 per month)
Admission	The needs of informal caregivers are identified at admission	4	Process: % of patients with informal caregivers whose needs were mapped at admission (number of needs assessments / number of admissions)
	Define at admission what the rehabilitation team is able to do and what not	4	Structure: At admission, it must be defined what the rehabilitation team can and cannot do for the patient to achieve an intended result
Treatment plan	The treatment plan is a contract and must be adhered to by the patient	3	Process: % of treatment plans signed by a patient (number of signed treatment plans / total number of treatment plans)
	Needs and wishes of the patient must be included in the treatment plan	8	Process: % of patients who participated in the development of a treatment plan (number of treatment plans in accordance with patient wishes and co-decision / total number of treatment plans)
Patient satisfaction	Patient satisfaction must be measured	5	Outcome: % patients who are satisfied with the care received (number of patients who completed NPS positive (= everything higher than 6) / total number of patients who completed patient satisfaction survey)

Length of stay	Length of stay as indicator	1	Process: Average length of stay per diagnosis group (total number of admitted days / total number of patients) (calculate per diagnosis group)
Treatment intensity	Treatment intensity as indicator	2	Process: Treatment intensity per diagnosis group (total number of hours of treatment / total number of patients) (calculate per diagnosis group)
Expertise of personnel	Correct expertise must be available for the patient's needs	3	Process: % understaffing of nursing staff (number of days with understaffing of nursing staff per year / 365) Process: % understaffing practitioners (number of days with understaffing of practitioners per year / 365)
	Personnel must be educated in geriatric rehabilitation care	6	Process: % nursing staff with education in geriatric rehabilitation care (number of nursing staff with geriatric rehabilitation education / total number of nursing staff) Process: % practitioners educated in geriatric rehabilitation care (number of practitioners educated in geriatric rehabilitation care / total number of practitioners)
	Staff expertise is important	4	Structure: Are staff sufficiently qualified to provide geriatric rehabilitation care?
	A practitioner educated in geriatric rehabilitation care must be present	4	Structure: A practitioner educated in geriatric rehabilitation care is present
	It is necessary to respond to a growing number of patients with behavioural and psychological problems	4	Structure: Is the staff sufficiently competent to care for and treat patients with psychological problems?
	A specialist geriatric medicine must always be available on call	1	Structure: A specialist geriatric medicine must always be on call
	Physiotherapy must be available six days a week	1	Structure: It must be possible to offer treatment six days a week
	There must be al culture change of nursing staff from taking care of to ensuring that	4	Structure: Healthcare providers are aware of the fact that a patient has to do as much as possible himself in the context of everything is rehabilitation
	Temporary workers must be also educated in geriatric rehabilitation care or have experience with geriatric rehabilitation care	2	Structure: Is the care formation sufficiently in order so that no temporary workers have to be deployed?
	There must be a compulsory training/education policy	1	Process: % nursing staff who annually participate in education, training, or courses (number of nursing staff annually participating in education, training, or courses / total number of nursing staff) Process: % practitioners who annually participate in education, training, or courses (number of

			practitioners annually participating in education, training, or courses / total number of practitioners)
Composition care team	Level five or six nurses must be active in geriatric rehabilitation care	7	Process: % nursing staff with college education (number of nurses with college education / total number of nursing staff)
	There must be 24-hour availability of level four or five nurses	3	Structure: There must be 24-hour availability of level 4 or 5 nurses
	There must be a health care psychologist working in geriatric rehabilitation care	1	Structure: At least one health care psychologist must be working in geriatric rehabilitation care
Collaboration nurses-practitioners	Collaboration between nurses and practitioners is important	4	Structure: In addition to the multidisciplinary consultation and the doctor's visit, there is time and space for nursing staff and practitioners to exchange knowledge
Clinimetry	Clinimetry is an important indicator of progress	4	Process: % patients for whom clinimetry was performed (number of patients with USER entered / total number of patients)
	Rehabilitation process / progression should be monitored	4	Structure: Clinimetry must be performed every two weeks
	The patient should be kept informed of rehabilitation progress through clinimetry during rehabilitation	1	Structure: Clinimetry outcomes are discussed with the patient and the treatment plan is adjusted if necessary
Patient education	Information must also be provided on paper	2	Process: % patients who received information (digital or on paper) about the rehabilitation process (number of patients who received information (digital or on paper) about the rehabilitation process / total number of patients)
	Expectation management of patients is very important	4	Structure: During rehabilitation, patients must be informed about the progress and whether the obtained result can be achieved or needs to be adjusted
	Conversation technique with the patient is very important	2	Process: % practitioners with knowledge of different conversation techniques (number of practitioners with knowledge of different conversation techniques / total number of practitioners)
Medical equipment	Medical equipment must be well maintained	4	Structure: Medical devices are inspected annually
E-Health	E-health can contribute to the quality of geriatric rehabilitation care	7	Structure: E-Health is used to promote the patient's own control Structure: E-Health is used to promote the effectiveness of the geriatric rehabilitation care
Learning from errors	Errors/incidents must be systematically analysed (through Prisma, PDCA)	5	Process: % MIC reports that have been systematically analysed (number of errors that have been analysed / total number of errors)
	All incidents must be reported	4	Structure: There is a culture in which all incidents are reported

	Each trajectory must be evaluated afterwards	2	Process: % rehabilitation processes evaluated by healthcare providers during the last multidisciplinary consultation (number of rehabilitation processes evaluated by healthcare providers during the last multidisciplinary consultation / total number of completed rehabilitation processes)
	Specialisation in diagnosis groups is important for a good quality of geriatric rehabilitation care	3	Structure: The geriatric rehabilitation care is organised per diagnosis group
	Needs and wishes of the patient must be central	4	Structure: Care is organised according to the wishes and needs of patients
Triage	Triage must comply with geriatric rehabilitation care triage protocols	1	Structure: An unambiguous and uniform triage model is used
	Geriatric rehabilitation care may not serve as a waiting portal for the long-term care	3	Structure: In the absence of potential for rehabilitation, the patient is not admitted to geriatric rehabilitation care
Ambulatory geriatric rehabilitation care	Ambulatory geriatric rehabilitation care is conductive to quality of care	3	Structure: The organistation where the patients has been treated offers outpatient geriatric rehabilitation treatment after discharge of the patient
Complaints	There must be a complaints procedure that complies with the Complaints and Disputes Act	2	Structure: During admission, the patient is informed that a complaints procedure is in place
Outflow	Percentage of patients returning home as an indicator	3	Outcome: % patients that returns to the home situation (number of patients that returns to the home situation / total number of admitted patients) (calculate per diagnosis group)
Evidence-based	Evidence-based, best practice treatment should be provided	2	Structure: Developments around evidence-based treatments are monitored and an annual evaluation is made to see whether new developments can be implemented
Planning	Capacity of personnel should be aligned with occupation and level of care	2	Structure: Capacity planning is made on the basis of bed occupancy and level of care
	There must be a central planning of care	1	Structure: There is a central planning that organises the care around the patient
Waiting time	Waiting time as indicator	1	Process: % time that all beds are occupied (number of days a year that all beds are occupied / 365)

The next step was to combine the indicators that were identified from the literature (table 1) with the indicators that were developed based on the interviews (table 2). The indicators that were developed based on the interviews were added to table 1 and duplications were removed. Two core categories (admission and discharge) had to be added, since the existing core categories from the literature were not sufficient. The result of this phase is table 3, which presents the set of quality indicators for geriatric

rehabilitation care based on the literature and qualitative research. This table includes 33 structure, 30 process, and 6 outcome indicators which are divided into seven different core categories.

Table 3 Set of quality indicators after literature research and qualitative research[3]

Structure	**Process**	**Outcome**
General indicators		
An unambiguous and uniform triage model is used	Number of patients per diagnosis group per year *	
In the absence of potential for rehabilitation, the patient is not admitted to geriatric rehabilitation care	Average length of stay per diagnosis group (*total number of admitted days / total number of patients) (calculate per diagnosis group)*	
The geriatric rehabilitation care is organized/specialised per diagnosis group *	Treatment intensity per diagnosis group (*total number of hours of treatment / total number of patients) (calculate per diagnosis group)*	
Care is organised according to the wishes and needs of patients	% time that all beds are occupied (*number of days a year that all beds are occupied / 365)*	
There is a central planning that organises the care around the patient		
E-Health is used to promote the patient's own control		
E-Health is used to promote the effectiveness of the geriatric rehabilitation care		
The organistation where the patients has been treated offers outpatient geriatric rehabilitation treatment after discharge of the patient		
Therapeutic treatment, patient care, and patient education indicators		
An individual multidisciplinary rehabilitation plan is developed for each patient *	% of treatment plans signed by a patient *(number of signed treatment plans / total number of treatment plans)*	% Patients that achieved rehabilitation goals

[3] Quality indicators for geriatric rehabilitation care developed based on the literature and interviews with eight healthcare professionals working in geriatric rehabilitation care. The first column includes structure indicators, the second column process indicators, and the last column the outcome indicators. The indicators are divided into seven core categories. Indicators that were identified from the literature are marked with a *.

		*(number of patients that achieved rehabilitation goals / total number of patients) **
Clinimetry must be performed every two weeks	% of patients who participated in the development of a treatment plan *(number of treatment plans in accordance with patient wishes and co-decision / total number of treatment plans) **	% Patients with complications during admission *(number of patients with complications during admission / total number of patients) **
Clinimetry outcomes are discussed with the patient and the treatment plan is adjusted if necessary	Number of progress interviews during the admission of the patient (*number of progress interviews / time period = 2 per month)*	% Patients that was refused because of occupied beds *(number of patients that was refused because of occupied beds / total number of admitted patients) **
It must be possible to offer treatment six days a week	% of patients whose informal caregivers are involved in the rehabilitation process (*number of patients whose informal caregivers are involved in the rehabilitation process / total number of patients)*	% Mortality *(number of diseased patients / total number of patients) **
Healthcare providers are aware of the fact that a patient has to do as much as possible himself in the context of 'everything is rehabilitation'	% of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist *(number of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist / total number of patients)*	
Patients are encouraged to do physical exercises in addition to regular therapy	% patients for whom clinimetry was performed *(number of patients with USER entered / total number of patients)*	
During admission, the patient is informed that a complaints procedure is in place	% patients who received information (digital or on paper) about the rehabilitation process *(number of patients who received information (digital or on paper) about the rehabilitation process / total number of patients) **	
Admission indicators		
An inventory was made at admission to determine whether informal caregivers are able to support the patient at home after discharge	% patients where the discharge criteria were discussed at admission *(number of patients where the discharge criteria were discussed at admission / total number of patients*)	

At admission, it must be defined what the rehabilitation team can and cannot do for the patient to achieve an intended result	% admission conversations where informal caregivers of the patient were present *(number of admission conversations where informal caregivers of the patient were present / total number of admission conversations)*	
	% of patients with informal caregivers whose needs were mapped at admission (*number of needs assessments / number of admissions)*	
	% patients whose medication was verified at admission *(number of patients whose medication was verified at admission / total number of admitted patients) **	
	% patients screened on malnutrition at admission *(number of patients that was screened on malnutrition at admission / total number of admitted patients) **	
Discharge indicators		
	% of patients whose informal caregivers felt sufficiently prepared for the patient's discharge (*number of patients whose informal caregivers felt sufficiently prepared for the patient's discharge / total number of patients)*	% patients that returns to the home situation (*number of patients that returns to the home situation / total number of admitted patients) (calculate per diagnosis group)*
	% patients whose transition to home did not go well due to insufficient preparation (*number of patients whose transition to home did not go well due to insufficient preparation / total number of patients)*	
	% patients whose medication was verified at discharge *(number of patients whose medication was verified at discharge / total number of dischared patients) **	
Medical equipment indicators		
Valid medical equipment is used *		
Medical devices are inspected annually		

Medication is prescribed through an electronic prescription system *		
Internal quality management indicators		
When a patient disease, this is systematically analysed *	% of patients who completed a patient satisfaction survey *(number of patients who completed a patient satisfaction survey / total number of patients) **	% patients who are satisfied with the care received *(number of patients who completed NPS positive (= everything higher than 6) / total number of patients who completed patient satisfaction survey) **
When complications arise, this is systematically analysed *	% MIC reports that have been systematically analysed *(number of errors that have been analysed / total number of errors)*	
There is a culture in which all incidents are reported	% rehabilitation processes evaluated by healthcare providers during the last multidisciplinary consultation *(number of rehabilitation processes evaluated by healthcare providers during the last multidisciplinary consultation / total number of completed rehabilitation processes)*	
Developments around evidence-based treatments are monitored and an annual evaluation is made to see whether new developments can be implemented		
Staffing indicators		
Are staff sufficiently qualified to provide geriatric rehabilitation care?	% understaffing of nursing staff *(number of days with understaffing of nursing staff per year / 365)*	
Is the staff sufficiently competent to care for and treat patients with psychological problems?	% understaffing of practitioners *(number of days with understaffing of practitioners per year / 365)*	
A practitioner educated in geriatric rehabilitation care is present	% nursing staff with education in geriatric rehabilitation care (*number of nursing staff with geriatric rehabilitation education / total number of nursing staff)*	
A specialist geriatric medicine must always be on call	% practitioners educated in geriatric rehabilitation care *(number of practitioners educated in geriatric rehabilitation care / total number of practitioners)*	

At least one health care psychologist must be working in geriatric rehabilitation care	% nursing staff who annually participate in education, training, or courses (*number of nursing staff annually participating in education, training, or courses / total number of nursing staff)*	
There must be 24-hour availability of level 4 or 5 nurses	% practitioners who annually participate in education, training, or courses (*number of practitioners annually participating in education, training, or courses / total number of practitioners)*	
Is the care formation sufficiently in order so that no temporary workers have to be deployed?	% nursing staff with college education (*number of nurses with college education / total number of nursing staff)*	
Capacity planning is made on the basis of bed occupancy and level of care	% practitioners with knowledge of different conversation techniques (*number of practitioners with knowledge of different conversation techniques / total number of practitioners)*	
In addition to the multidisciplinary consultation and the doctor's visit, there is time and space for nursing staff and practitioners to exchange knowledge		

4.3 Quantitative results

The indicators in table 3 were processed in a questionnaire. The goal of the questionnaire was to obtain the opinion of managers and geriatric doctors about the relevance and feasibility of the quality indicators. The results of the questionnaire, which include the final set of quality indicators for geriatric rehabilitation care, are presented in this paragraph.

Descriptive statistics

66 respondents (41%) started with the questionnaire. 44 respondents completed the questionnaire, 22 stopped while answering the questions. The respondents were working for 50 different organisations, there are 146 organisation in the Netherlands that provide geriatric rehabilitation care, hence 34% of these organisations participated in this study.

The occupations of the different respondents are given in table 4. The questionnaire was initially send to managers or directors of geriatric rehabilitation facilities and geriatric (rehabilitation) doctors. However, in some cases respondents with other occupations were also able to fill in the questionnaire since they had an affinity with and knowledge of the quality of healthcare in geriatric rehabilitation. In this case the manager or geriatric doctor asked the concerned person to fill in the questionnaire.

Table 4 Occupation of respondents

	N
Manager	24 (36,4%)
Specialist geriatric medicine	15 (22,7%)
Specialist geriatric rehabilitation medicine	15 (22,7%)
Policy officer	1 (1,5%)
Case manager	1 (1,5%)
Nurse	5 (7,6%)
Director	1 (1,5%)
Logopaedic	1 (1,5%)
Process manager	2 (3,0%)
Physiotherapist	1 (1,5%)

Assessment of quality indicators

The assessment of the respondents of the different individual quality indicators can be found in Appendix 5. This assessment determines whether the indicator was selected for inclusion in the final set of quality indicators for geriatric rehabilitation care.

Final set of quality indicators for geriatric rehabilitation care

The quality indicators that were selected after the assessment by the respondents of the questionnaire (Appendix 5) together with the four new structure indicators (Appendix 6) form the final set of quality indicators for geriatric rehabilitation care, which are considered as relevant and feasible by the respondents. The foundation for the indicators was a literature study and a qualitative study in which eight stakeholders and experts in geriatric rehabilitation care were interviewed. The final set of quality indicators is presented in table 5. This final set of quality indicators contains in total 27 indicators, of which 17 structure, 8 process, and 2 outcome indicators.

Table 5 Final set of quality indicators for geriatric rehabilitation care

Structure	**Process**	**Outcome**
General indicators		
An unambiguous triage model is used	Average length of stay per diagnosis group Required data: Total length of stay / total number of patients	
	Treatment intensity per diagnosis group Required data: Total number hours of treatment per diagnosis group / total number of patients per diagnosis group	
Therapeutic treatment, patient care, and patient education indicators		
An individual multidisciplinary rehabilitation plan is designed for each patient		
Healthcare providers should be aware of the fact that a patient has to do (whether possible) as much as possible themselves in the context of 'everything is rehabilitation'		
Patients are involved in the development of the rehabilitation plan		
Patient's informal caregivers are involved in the rehabilitation process		
Patient's informal caregivers are present during treatment by a physiotherapist or occupational therapist		

Patients receive information (digitally or on paper) about the disease and rehabilitation process		
Admission		
Discharge criteria are discussed at admission	% admission interviews where informal caregivers of the patient were present Required data: Number of admission interviews where informal caregivers of the patient were present / total number of admission interviews	
	% of patients whose medication was verified upon admission Required data: Number of patients whose medication was verified at admission / total number of admitted patients	
	% of patients screened for malnutrition at admission Required data: Number of patients screened for malnutrition at admission / total number of admitted patients	
Discharge		
	% of patients whose medication was verified at discharge Required data: Number of patients whose medication was verified at discharge / total number of discharged patients	% of patients returning home per diagnosis group Required data: Number of patients returning home / total number of admitted patients (calculate per diagnosis group)
Medical-technical equipment indicators		
Valid medical devices are used		
Medical devices are inspected annually		
Medication is prescribed through an electronic prescription system		
Internal quality management indicators		
A culture in which all incidents are reported prevails	% MIC reports that have been systematically analysed Required data: Number of MIC reports that have been systematically analysed / total number of MIC reports	% of patients satisfied with the care received Required data: Number of patients who completed NPS positive (= higher than 6) / total number of patients who completed the patient satisfaction survey
Staffing indicators		
Personnel has to be adequately qualified to provide geriatric rehabilitation care	% of practitioners that annually participates in training, education, or courses	

	Required data: Number of practitioners that annually participates in training, education, or courses / total number of practitioners	
There is a doctor specialised in geriatric rehabilitation medicine present		
A doctor specialised in geriatric medicine must always be on call		
At least one GZ-psychologist must be active within the geriatric rehabilitation care		
There must be 24-hour availability of level 4 or 5 nurses		

5. Discussion

This study contributes to the existing literature of geriatric rehabilitation care by providing a first set of quality indicators for geriatric rehabilitation care. The indicators were developed using a combination of a search of the literature, qualitative, and quantitative research. The search of the literature resulted in 36 quality indicators. The interviews in the qualitative part of this study resulted in 55 quality indicators. Combining the quality indicators from the literature review and from the interviews and removing duplicates resulted in 69 quality indicators. These quality indicators were rated on relevance and feasibility by healthcare professionals working in geriatric rehabilitation care in the quantitative part of this study. This resulted in a final set of 27 quality indicators for geriatric rehabilitation care. Herewith the aim of the study was achieved.

According to the literature, there is a need for indicators to measure the quality of geriatric rehabilitation care [11,32,43,44]. Providers of geriatric rehabilitation care have the desire to use the quality indicators to improve the quality of healthcare. There is also a need for quality indicators to justify the provided healthcare to healthcare insurers. [43] Besides registering and monitoring the quality of care, healthcare insurers and providers of geriatric rehabilitation care could use the quality indicators as a benchmark [34,35]. When comparing the outcomes of the quality indicators, differences and possibly the causes of these differences could be identified. By doing so, best practices can be established, which contributes to the quality of geriatric rehabilitation care. Also patients can benefit from these quality indicators. First by selecting the provider of geriatric rehabilitation care that scores the best on the indicators that are considered as most important by the patient. Second, patients also benefit from quality indicators since they often result in a higher quality of care [34,42].

It is essential that the set of quality indicators developed in this study is concise. Including too many indicators results in a large indicator set that is not workable in daily practice, however when too few indicators are included, there is the possibility that important quality aspects are missed [41]. Compared to other quality indicator sets within healthcare, the set developed in this study has a similar number of indicators. The set of quality indicators for medical specialistic rehabilitation care includes 25 different indicators [40]. For nursing homes, the set of quality indicators includes 27 different indicators [39]. Diabetes care has a set of 26 quality indicators [38] and for palliative care this number is 33 [37].

The response rate of the questionnaire was 41%. Many doctors and managers responded to the invitation mail that they had no time to answer the questionnaire, since they were too busy with the COVID-19 pandemic. Every two weeks a reminder was send to the managers and doctors that did not respond to the questionnaire. After eight weeks, the data collection was stopped. Taking the

COVID-19 crisis into account, the response of 41% rate is regarded as sufficient. On average, the response rate from individuals in studies with questionnaires is 53% [33]. Respondents of 50 different organisations participated in the questionnaire, there are in total 146 organisations that provide geriatric rehabilitation care in the Netherlands. Herewith the response rate in this study on organisational level is 34%. The average response rate from organisations in studies with questionnaires is 36% [33]. The response rate in this study is therefore considered sufficient and similar to the average response rate with studies with questionnaires [33].

In the questionnaire, the occupation of respondents was asked. The questionnaire was send to managers, geriatric rehabilitation doctors, and geriatric doctors. An equal number of respondents from each group responded, and on occupational level, these groups did not answer the questionnaire different. This indicates that the experts have the same opinion concerning the relevance and feasibility of quality indicators for geriatric rehabilitation care, regardless of their occupation.

The transcripts of the interviews were made by hand by the researcher. An attempt was made to use the automatic program Amberscript, but this was considered as not accurate enough by the researcher. Words were missing, or wrong words were given. Transcribing the interviews by hand took longer, but the result was more precise. The analysis of the transcripts was performed by one person (the researcher) and was also performed by hand. By analysing the interviews by hand, the researcher had profound insight in the different labels and connection between parts of the interviews. The different phases during the analysis (open coding, axial coding, and selective coding) were supervised by an expert in methodology. This expert was affiliated with the University of Twente and has profound knowledge of qualitative research methods and methods of analysis for interviews. The different labels, categories, and core categories were discussed with an expert in geriatric rehabilitation care. This expert is consultant and interim manager/director with profound experience and knowledge within geriatric rehabilitation care. Including these experts assured that the process of data analysis and development of indicators went correct, and that not only the opinion of the researcher solely made important decisions concerning the development of quality indicators.

During this study, interviews were conducted to answer the research question: *What aspects and outcomes of geriatric rehabilitation care are regarded as possible indicators of quality of care according to doctors, nurses, managers, and healthcare insurers who are affiliated with geriatric rehabilitation care?* These four types of experts were enclosed, since it was important to include different stakeholders with different opinions. All stakeholders have different opinions and interest regarding rehabilitation care. For example, a nurse that cares on a daily basis for geriatric patients has another opinion than a healthcare insurer. A nurse is more focused on the patient, while a healthcare insurer is also focused on effectiveness of care on an organisation level. Including different stakeholders in the development of the quality indicators is a strength of this study, since it resulted

in a set of quality indicators that reflects the opinion of different healthcare professionals with different point of views included.

The goal was to develop a set of quality indicators that can be used in practice. Besides the earlier mentioned size of the indicator set, it is also important that the indicators are relevant and feasible [15,16]. Therefore, these aspects were included into the questionnaire. Feasibility is important, since the data that is required to calculate the indicators has to be available or can be made available. Without taking this aspect in consideration, there is the risk of developing an indicator set with indicators that cannot be calculated. Also relevance is an important aspect, since quality indicators have to measure aspects that represents the quality of geriatric rehabilitation care. Relevance represents also the fact whether the provider of geriatric rehabilitation care is able to influence the outcome of the indicators. When this is not the case, quality indicators measure aspects where is no possibility for quality improvement. Herewith another strength of this study is that feasibility and relevance were considered.

Within this study, a selection of quality indicators for the final indicator set is made based on the results of the questionnaire. There is the possibility to consult the respondents of the questionnaire after the quantitative research to obtain consensus about which quality indicators to include in the final set of indicators. This Delphi method is used in other studies to develop quality indicators [46]. This was out of the scope of this study, and can therefore be seen as a limitation of this study. Follow-up research can include a study to perform a Delphi based study design to define consensus about the indicators that were selected based on the questionnaire.

Follow-up research can also investigate whether this set of quality indicators is valid and reliable. Testing the indicator set on reliability and validity can identify areas that require further specifications of the quality measurements [45]. Reliability of an indicator denotes the extent to which measurements of a stable phenomenon by different providers geriatric rehabilitation care and instruments, at different times and places, obtain similar results. Reliability is important for comparing groups or comparing the same group over time periods. Validity refers to the degree to which a quality indicator measures what it is intended to measure, that is whether the results of a measurement conform to the true state of the phenomenon being measured. [45]

In order to assess the set with quality indicators for geriatric rehabilitation care on reliability and validity, data is required. To collect data, the set of quality indicators developed in this study has to be used in practice. In February 2021, a network of twenty different organisations that provide geriatric rehabilitation care mentioned the willingness to implement this set with indicators in their organisations, the goal is that other organisations follow their lead. After this initial implementation, reliability and validity can be assessed based on the collected data. For now, this first set of quality

satisfies the need for quality indicators for geriatric rehabilitation care and can be used to assess the quality of care taking the lack of evidence about the validity and reliability of the indicators in mind.

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Appendix 1 Interview schemes

Allereerst hartelijk bedankt dat u ik u mag interviewen en dat u mee wilt doen aan dit onderzoek.
Er zijn nog geen kwaliteitsindicatoren voor de GRZ ontwikkeld, hierdoor is het onduidelijk wat een goede kwaliteit van GRZ is en waar deze kwaliteit aan zou moeten voldoen.
Het doel van dit onderzoek is om onderwerpen op te stellen voor kwaliteitsindicatoren. Hierdoor zal er duidelijk worden welke aspecten er belangrijk zijn voor de kwaliteit van de GRZ. Het doel van dit interview is om inzichtelijk te krijgen wat verschillende zorgprofessionals vinden van de kwaliteit van de GRZ en waar deze kwaliteit aan zou moeten voldoen.

<u>Arts/verpleegkundige</u>: Wat zijn uw taken rondom de zorg voor geriatrische revalidatie patiënten op het gebied van…

Topic 1, Therapeutic treatment, patient care, and patient education

Behandeling, patiëntenzorg, patiëntenvoorlichting

- Hoe kan blijken dat een behandeling (medische handelingen) van goede kwaliteit is?
- Hoe kan blijken dat de zorg (normale, dagelijkse verzorging) voor de patiënt van goede kwaliteit is?
- Welke aspecten zijn belangrijk voor de kwaliteit van patiëntenvoorlichting?

Topic 2, Medical-technical equipment

Medische apparatuur

- Welke aspecten zijn belangrijk bij het gebruik van medische apparatuur bij patiënten?

Topic 3, Internal quality

Interne kwaliteit

- Doen er zich weleens situaties voor die u achteraf anders zou hebben aangepakt?
- Delen collega's ervaringen en verbeterpunten (systematisch) met elkaar?

Topic 4, Staffing

Personele bezetting

- Op welke manier draagt het personeel bij aan een goede kwaliteit van zorg?

Topic 5, General

Wanneer (een van) de volgende zes eigenschappen tijdens het interview nog niet besproken is, de betreffende eigenschap(pen) nog aan bod laten komen.

Goede kwaliteit van zorg voldoet aan zes eigenschappen, hoe kan gewaarborgd worden dat GRZ:

- Veilig is? (Schade voor de patiënt wordt voorkomen)
- Effectief is? (Zorg wordt verleend volgens wetenschappelijk bewezen behandelingen en verkeerd gebruik van zorg wordt voorkomen)
- Efficiënt is? (Verspilling van zorg wordt voorkomen)
- Patiëntgericht is? (Zorg wordt georganiseerd rondom de patiënt, met respect voor de wensen van de patiënt)
- Rechtvaardig is? (Alle patiënten hebben gelijke rechten, niemand mag worden voorgetrokken)

Hebt u nog iets gemist tijdens dit interview? Is iets nog niet ter sprake gekomen wat wel belangrijk is voor de kwaliteit van de GRZ?

<u>Manager</u>: Hoe waarborgt u kwaliteit van de volgende aspecten?

<u>Verzekeraar</u>: Wat is belangrijk voor de kwaliteit van de volgende aspecten?

Topic 1, Therapeutic treatment, patient care, and patient education

Behandeling, patiëntenzorg, patiëntenvoorlichting

- Hoe kan blijken dat een behandeling door een behandelaar (arts, fysiotherapeut, ergotherapeut) van goede kwaliteit is?
- Hoe kan blijken dat de (normale, dagelijkse) zorg voor de patiënt van goede kwaliteit is?
- Welke aspecten zijn belangrijk voor de kwaliteit van de patiëntenvoorlichting?

Topic 2, Medical-technical equipment

Medische apparatuur

- Welke aspecten zijn belangrijk bij het gebruik van medische apparatuur bij patiënten?

Topic 3, Internal quality

Interne kwaliteit

- Hoe kan worden geleerd van gemaakte fouten en hoe kunnen deze fouten in de toekomst voorkomen worden?

Topic 4, Staffing

Personele bezetting

- Op welke manier kan het personeel bijdragen aan een goede kwaliteit van zorg?

Topic 5, General

Wanneer (een van) de volgende zes eigenschappen tijdens het interview nog niet besproken is, de betreffende eigenschap(pen) nog aan bod laten komen.

Goede kwaliteit van zorg voldoet aan zes eigenschappen, hoe kan gewaarborgd worden dat GRZ:

- Veilig is? (Schade voor de patiënt wordt voorkomen)
- Effectief is? (Zorg wordt verleend volgens wetenschappelijk bewezen behandelingen en verkeerd gebruik van zorg wordt voorkomen)
- Efficiënt is? (Verspilling van zorg wordt voorkomen)

- Patiëntgericht is? (Zorg wordt georganiseerd rondom de patiënt, met respect voor de wensen van de patiënt)
- Rechtvaardig is? (Alle patiënten hebben gelijke rechten, niemand mag worden voorgetrokken)

Hebt u nog iets gemist tijdens dit interview? Is iets nog niet ter sprake gekomen wat wel belangrijk is voor de kwaliteit van de GRZ?

Appendix 2 Guideline questionnaire

Allereerst wil ik u hartelijk bedanken dat u bereid bent om deel te nemen aan dit onderzoek. Door het invullen van deze vragenlijst helpt u mee aan het ontwikkelen van kwaliteitsindicatoren voor de geriatrische revalidatiezorg. Het ontwikkelen van kwaliteitsindicatoren is belangrijk voor de gehele geriatrische revalidatie in Nederland en de individuele organisaties die geriatrische revalidatiezorg aanbieden. Uw deelname aan dit onderzoek is hierbij van essentieel belang.

Dit onderzoek is onderdeel van mijn afstudeerproject voor de masterstudies Health Sciences en Business Administration en wordt uitgevoerd in opdracht van een adviesbureau. Naast dit onderzoek werk ik momenteel ook aan een onderzoek naar de effectiviteit van de GRZ. In november zal ik hierover een vragenlijst versturen naar managers van organisaties die GRZ verlenen. Ik hoop van harte dat u ook weer deel zult nemen aan dat onderzoek. Indien u als organisatie deel hebt genomen aan beide onderzoeken zult u een samenvatting met de resultaten van deze onderzoeken ontvangen wanneer deze zijn afgerond. Deze samenvatting zal ook adviezen bevatten over het verbeteren en optimaliseren van de GRZ.

Hierna volgt een handleiding voor het invullen van de vragenlijst. Het invullen zal ongeveer 20 minuten duren. U kunt tussentijds stoppen met het invullen van de vragenlijst om op een ander moment verder te gaan. Uw antwoorden zullen in dit geval worden opgeslagen.

Indien er onduidelijkheden of vragen zijn neem gerust contact met mij op.

Vriendelijke groet,
Bram Veneberg
06-11524410
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Handleiding invullen vragenlijst ontwikkeling kwaliteitsindicatoren voor de geriatrische revalidatiezorg

Methode
De kwaliteitsindicatoren die worden gepresenteerd in de vragenlijst zijn ontwikkeld middels een literatuuronderzoek en interviews met verschillende zorgprofessionals. Omdat het van belang is dat de mening van veel verschillende professionals wordt meegenomen tijdens de ontwikkeling van de kwaliteitsindicatoren, is deze vragenlijst verzonden naar alle organisaties in Nederland die geriatrische revalidatiezorg verlenen. Managers en specialisten ouderengeneeskunde/kaderartsen GRZ van de desbetreffende organisaties ontvangen deze vragenlijst met de vraag om deze in te vullen.

Doel van de vragenlijst
Het doel van deze vragenlijst is om inzichtelijk te krijgen welke kwaliteitsindicatoren relevant zijn voor de geriatrische revalidatiezorg. Daarnaast wordt beoogd om in kaart te brengen of de kwaliteitsindicatoren realiseerbaar zijn voor implementatie in geriatrische revalidatiecentra.

Anonimiteit
De vragenlijst begint met een aantal algemene vragen. Zo wordt er gevraagd naar uw functie en de organisatie waar u voor werkt. De antwoorden die u hier invult worden niet gekoppeld aan de antwoorden die u geeft op de vervolgvragen in de vragenlijst, maar worden enkel gebruikt om te bepalen hoeveel organisaties hebben deelgenomen aan deze vragenlijst. Alle antwoorden die u geeft worden anoniem verwerkt. Alleen de onderzoeker zal de data verwerken. De data wordt bewaard op een versleutelde server waar alleen de onderzoeker toegang tot heeft.

Instructies voor het invullen
De kwaliteitsindicatoren zijn opgedeeld in structuur, proces en uitkomst indicatoren, zoals gebruikelijk is bij kwaliteitsindicatoren. Ook zijn de kwaliteitsindicatoren opgedeeld in verschillende onderwerpen. Een korte uitleg over het verschil tussen structuur, proces en uitkomst indicatoren is te vinden aan het eind van deze handleiding.

De onderwerpen zullen een voor een aan bod komen gedurende de vragenlijst. Per onderwerp zullen eerst de structuur indicatoren behandeld worden, vervolgens de proces indicatoren en tot slot de uitkomst indicatoren. Niet ieder onderwerp bevat alle drie soorten indicatoren, het is dus mogelijk dat er een onderwerp is met bijvoorbeeld alleen structuur indicatoren.

Per kwaliteitsindicator zal gevraagd worden in hoeverre de betreffende indicator relevant en realiseerbaar is. De definities van **relevantie** en **realiseerbaarheid** zijn **onderaan deze pagina** te vinden, lees deze alstublieft goed door.

De mate van relevantie en realiseerbaarheid zal worden uitgevraagd op een schaal van 1 tot 9. Hierbij vertegenwoordigd 1 een lage relevantie en realiseerbaarheid en 9 hoge relevantie en realiseerbaarheid.

Indien u een bepaalde indicator niet kunt beoordelen, kunt u bij deze indicator de optie ‘Ik kan deze indicator niet beoordelen’ aanvinken.

Definities

Relevantie

- De indicator weerspiegelt de kwaliteit van de GRZ
- De zorgaanbieder kan invloed uitoefenen op de uitkomst van de indicator

Realiseerbaarheid

- Het is mogelijk om de indicator te beantwoorden
- De benodigde gegevens zijn beschikbaar of kunnen beschikbaar worden gemaakt
- De tijd en moeite die het kost om de indicator te beantwoorden is acceptabel

Opmerking: Bij structuur indicatoren gaat het bij realiseerbaarheid niet over het feit of de organisatie wel of niet kan voldoen aan de indicator, maar of het mogelijk is om de indicator te beantwoorden.
Voorbeeld: U bent een kleine organisatie en u hebt 1 GRZ afdeling met 10 bedden. Wanneer er wordt gevraagd naar de realiseerbaarheid van de indicator 'De GRZ is georganiseerd per diagnosegroep' gaat het er niet om of u de GRZ per diagnosegroep kan gaan organiseren, want dat is met 10 GRZ-bedden niet mogelijk. Het gaat erom of het mogelijk is om deze indicator te beantwoorden met 'ik voldoe hieraan' of 'hier voldoe ik niet aan'. In dit geval is de indicator dus wel realiseerbaar, want u kunt deze beantwoorden met 'hier voldoe ik niet aan'.

Structuur, proces en uitkomst indicatoren

Indien u graag meer wilt weten over het verschil tussen structuur, proces en uitkomstindicatoren volgt hier een korte uitleg.

Structuur indicatoren betreffen vragen naar de organisatorische randvoorwaarden van de zorg. Het zijn indicatoren die beantwoord kunnen worden met 'hier voldoen wij wel aan' of 'hier voldoen wij niet aan'. Bijvoorbeeld: voor iedere patiënt wordt een individueel multidisciplinair revalidatieplan opgesteld.

Proces indicatoren geven een indicatie over het verloop van processen in een organisatie. Bijvoorbeeld: het percentage patiënten dat informatie heeft ontvangen (digitaal of op papier) over het ziektebeeld en het revalidatieproces.

Uitkomst indicatoren zijn metingen van uitkomsten van geleverde zorg. Bijvoorbeeld: het percentage patiënten dat revalidatiedoelen heeft behaald.

Appendix 3 Indicators from literature review

The first column refers to the source of the indicator, the second column contains indicators that are regarded as suitable for geriatric rehabilitation care. The indicators that were found in the literature that are not regarded as suitable for geriatric rehabilitation care are given in column three.

Table 6 Indicators for rehabilitation care that are extracted from the literature

Reference	**Suitable for geriatric rehabilitation care**	**Not suitable for geriatric rehabilitation care**[4]
Rheumatic and musculoskeletal diseases [23]	Defined patient target group	Function, validated instrument
	An individual multidisciplinary rehabilitation plan for each patient	Access to meetings for informal caregivers and external personnel
	Regular team meetings with patients	Written individual plan for follow-up
	Participation of patients in setting rehabilitation goals	Patient participation in planning the intervention
	Function at admission and discharge	Patient participation in evaluating the intervention
	Goal attainment at discharge	Goal attainment 3-6 months after discharge
	Use of validated assessment instruments	HRQoL, at admission and discharge
	Registration and evaluation of adverse events	HRQoL, 3-6 months after discharge
	Percentage of adverse events	Percentage of patients with improvement in quality of life
	Percentage of patients that reached important goals	Goal attainment validated intstrument
Medical specialistic rehabilitation [25]	Medication verification at admission and discharge	Number of patients with outpatient treatment
	Screening on malnutrition at admission	Waiting time for outpatient treatment of patients with chronic pain
	Work agreements about assessment of allergies and hypersensitivity of patients	Rehabilitation protocol for perioperatively leg amputation
	Prescription of medication using an electronic prescription system	Waiting time for outpatient treatment
	Systematic evaluation of complications	Accessibility of facility

[4] Indicators were not regarded as suitable if they relate to something that does not apply to geriatric rehabilitation care, or if something is not possible to measure in geriatric rehabilitation care.

	Is patient satisfaction measured	Patient privacy is taken into consideration
	Participation of patients in development of treatment plan	Treatment of patients of twelve years and younger
	% of patients with complications	
	% of refused patients due to occupied beds	
	% of patients that had medication verification at admission	
	% of patients that had medication verification at discharge	
	Education of staff	
	% of patients that is screened on malnutrition at admission	
	Number of patients per diagnosis group	
Hungarian rehabilitation indicators [26]	Internal deaths are assessed through internal audit	Accreditation status
	Functional assessment at admission and discharge	Average costs of care per case
	A multidisciplinary rehabilitation plan is necessary within defined working days of admission	Time from assessment to first treatment
	Average length of stay per diagnosis group	Length of program by type of persons served, by type of program
	% of patients that is satisfied or very satisfied with rehabilitation	% of patients served returned to age-appropriate activities
	% of patients with improvement in physical, psychological, or social function	Rate of functional gain relative to resource utilisation
	% of patients per diagnosis group that is discharged to their home situation	
	% of patients with unplanned interruption of rehabilitation plan	
	% of mortality	
	Average functional improvement per diagnosis group	
Challenging rehabilitation environment [27]	Enriched rehabilitation environment	
	Average therapy time per patient per diagnosis group	
	Specialised wards for different diagnosis groups	

Delphi study to reach European consensus about geriatric rehabilitation [28]	Minimum number of qualified personnel present	

Appendix 4 Qualitative results from the coding phase

Table 7 Qualitative results from the coding phase[5]

Category	Label	N
Discharge of patients	The patient must be able to go home safely and securely	1
	In the event of an impending discharge, everything must be settled to return home	1
	Transition from inpatient to home must be incorporated into rehabilitation process	2
	It must be clear where the patient can go with questions after discharge	1
	There must be contact with the general practitioner and district nurses about follow-up care after discharge	2
	After discharge, aftercare must be provided	2
	Patients should be informed about the discharge criteria at admission	1
Informal caregivers (and the rehabilitation process)	Involving informal caregivers in the rehabilitation process is important	7
	Informal caregivers should be present at the intake conversation	4
	Informal caregivers make it possible for the patient to return home	5
	Informal caregivers must be prepared for the patient's discharge	5
	Care teams must ensure that informal caregivers keep their agreements	1
	Informal caregivers must be involved in the treatment	4
	Informal caregivers should also be educated about rehabilitation	2
Progress interview	The progress interview takes place every two weeks	2
	Informal caregivers must be present at the progress interview	2
Admission	At admission, a heteroamnesis is performed to involve family members	1
	The needs of informal caregivers are identified at admission	4
	Define at admission what the rehabilitation team is able to do and what not	4
	Every practitioner should see the patient at admission	1

[5] Results from the coding phase. Foundation for these categories (column one) and labels (column two) are eight interviews with different experts in geriatric rehabilitation care. Column three indicates the number of respondents that mentioned the concerning label during the interview.

Treatment plan	The treatment plan is a contract and must be adhered to by the patient	3
	Needs and wishes of the patient must be included in the treatment plan	8
	The treatment plan should be based on the overall picture of the patient	1
	A clear goal must be set for each treatment plan	1
Patient satisfaction	Patient satisfaction must be measured using the NPS	1
	Patient satisfaction must be measured	5
Length of stay	Average length of stay as an indicator	1
Treatment intensity	Treatment intensity as an indicator	2
Expertise of personnel	Correct expertise must be available for the patient's needs	3
	Personnel must be educated in geriatric rehabilitation care	6
	Staff expertise is important	4
	A practitioner educated in geriatric rehabilitation care must be present	4
	Different care-related knowledge is required for each diagnosis group	1
	It is necessary to respond to a growing number of patients with behavioural and psychological problems	4
	A specialist geriatric medicine must always be available on call	1
	Physiotherapy must be available six days a week	1
	Conditions must be imposed on the tasks that the different levels of nurses are allowed to perform	2
	There must be al culture change of nursing staff from taking care of to ensuring that	4
	A supervising nurse promotes the quality of care	1
	Temporary workers must be also educated in geriatric rehabilitation care or have experience with geriatric rehabilitation care	2
	Experience is an important quality indicator	1
	Paramedics must be specialised in the diagnosis group	1
	There must be a compulsory training/education policy	1
Composition care team	There must be nurses specialised in the diagnosis group	1
	Level five or six nurses must be active in geriatric rehabilitation care	7
	More nurses are needed in the composition of the care teams	1
	Assistants (level two) are not suitable for the geriatric rehabilitation care	1

	Assistants (level two) can perform certain tasks within geriatric rehabilitation care (living room, well-being)	4
	There must be 24-hour availability of level four or five nurses	3
	There must be permanent practitioners working, not changing practitioners	1
	There must be a health care psychologist working in geriatric rehabilitation care	1
Collaboration nurses-practitioners	Collaboration between nurses and practitioners is important	4
	Nurses and practitioners must exchange knowledge	3
	There must be set communication moments between nurses and practitioners	1
Clinimetry	Clinimetry is an important indicator of progress	4
	Rehabilitation process / progression should be monitored	4
	USER must be used for monitoring patients	3
	The patient should be kept informed of rehabilitation progress through clinimetry during rehabilitation	1
	The effect of geriatric rehabilitation can be measured at discharge	1
	The effect of geriatric rehabilitation can be measured in the home situation	1
Patient education	Information must be repeated	1
	Information must also be provided on paper	2
	It must be clear where the patient can go with questions after discharge	1
	Patient education must be tailored to what patients experience	1
	Expectation management of patients is very important	4
	Conversation technique with the patient is very important	2
Medical equipment	Medical equipment must be sufficiently available	1
	Medical equipment must be user-friendly	2
	Users of medical devices must be involved in the purchasing process	1
	Medical equipment must be valid	1
	Medical equipment must be well maintained	4
	Defective equipment must be replaced quickly	1
	Medical equipment must be (annually) inspected	4
	Medical equipment must be available to enable proper patient care	1
E-Health	E-health can contribute to the quality of geriatric rehabilitation care	7
	E-health can contribute to the availability of doctors	2

Learning from errors	Errors/incidents must be systematically analysed (through Prisma, PDCA)	5
	All incidents must be reported	4
	Points for improvement must be discussed systematically	1
	Each trajectory must be evaluated afterwards	2
Identification of problems	Nurses should recognise and report problems at an early stage	1
	Difficult situations must be discussed during a multidisciplinary consultation	1
Specialisation on diagnosis groups	Specialisation in diagnosis groups does not result in a better quality of geriatric rehabilitation care	1
	Specialisation in diagnosis groups is important for a good quality of geriatric rehabilitation care	3
Needs of patients	When the patient's needs cannot be met, search for a solution outside geriatric rehabilitation care	3
	Geriatric rehabilitation should look at the overall picture of the patient	1
	Needs and wishes of the patient must be central	4
	The patient's cognition must be considered	2
Triage	Geriatric doctor must have a good relationship with referring doctors in the hospital	1
	Triage must comply with geriatric rehabilitation care triage protocols	1
	Geriatric rehabilitation care may not serve as a waiting portal for the long-term care	3
	Parties must remain vigilant about incorrect references	1
	For incorrectly referred patients, a long-term care indication must be requested immediately	2
	Referral behaviour must be evaluated with the hospital	1
	Treatment within geriatric rehabilitation care must have added value for the patient	2
	Every patient deserves a change to rehabilitate	2
Ambulatory geriatric rehabilitation care	Ambulatory geriatric rehabilitation care is conductive to quality of care	3
Interchangeability of data	There must be good interchangeability of data between different healthcare providers	2
Complaints	There must be a complaints procedure that complies with the Complaints and Disputes Act	2
Outflow	Percentage of patients returning home as an indicator	3
	Outflow of patients is a bad indicator	2
Evidence-based	New quality developments must be evidence-based	2

	Evidence-based, best practice treatment should be provided	2
Multidisciplinary consultation	Patients should be discussed every two weeks during a multidisciplinary consultation	1
Planning	Capacity of personnel should be aligned with occupation and level of care	2
	There must be a central planning of care	1
	Rehabilitation program should be planned spread over the week	1
Hospital	Cooperation with the hospital must be good	2
	Rehabilitation center must be attached to the hospital	3
Volume	At least 100 beds should be available for geriatric rehabilitation care	1
Waiting time	Waiting time as an indicator	1

Appendix 5 Assessment of individual indicators

This appendix presents the assessment of the different individual quality indicators by the respondents of the quantitative part of this study. The quality indicators are divided into the different predetermined subjects and per subject first the structure indicators are given, thereafter the process indicators and last the outcome indicators. Not all subjects contain all three different types of indicators. Per indictor the number of respondents that criticized the indicator is given. The percentage of respondents that judged the indicator in the highest tertile and the median are presented. Eventually the conclusion is given: selection, no selection or transformation into a structure indicator.

Subject: General
Structure indicators

Indicator 1:
An unambiguous triage model is used

		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	63				2	2	7	16	28	8	82,5	8	
Feasibility	64			1	1	5	11	21	19	6	71,9	7	

Indicator 2:
In the absence of potential for rehabilitation, the patient is not admitted to the geriatric rehabilitation care

		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	65	1	2	1	2		9	13	19	18	76,9	8	
Feasibility	65			4	6	2	17	15	14	7	55,4	7	

Indicator 3:
The geriatric rehabilitation care is organised per diagnosis group

		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	64	1	2	1	2	5	3	18	24	8	78,1	7,5	
Feasibility	64		2	2	5	4	9	19	17	6	65,7	7	

Indicator 4:
Healthcare is organised according to the wishes and needs of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	66				1	4	8	24	20	9	80,3	7	
Feasibility	66			1	1	5	22	29	8		56,0	7	

Indicator 5:
There is a central planning that organises the healthcare around the patient

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	63	5	3	4	6	7	5	12	9	12	52,3	7	
Feasibility	63	3	4	8	5	10	6	11	8	8	42,9	6	

Indicator 6:
E-Health is used to promote the patient's own control

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	63	2	4	2	8	10	8	13	10	6	46,0	6	
Feasibility	62	1	2	8	11	10	9	15	5	1	33,9	5	

Indicator 7:
E-Health is used to promote the effectiveness of geriatric rehabilitation care

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	61	3	3	3	6	9	6	12	10	9	50,9	7	
Feasibility	62	2	4	9	5	13	10	13	5	1	30,7	5	

Indicator 8:
The organisation where the patient was admitted offers outpatient geriatric rehabilitation care at the end of the rehabilitation process

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	66	5	4	3	1	5	9	7	19	14	60,6	7,5	
Feasibility	66	3	3	2	3	8	14	13	15	5	50,0	6,5	

Subject: General
Process indicators

Indicator 9: *Number of patients per diagnosis group per year*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	48		1		2	7	5	15	10	8	68,8	7	
Feasibility	47		1	1	2	5	5	15	7	11	70,2	7	

Indicator 10: *Average length of stay per diagnosis group* *Required data: Total length of stay / total number of patients*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	50			1	1	5	8	12	16	7	70,0	7	
Feasibility	50			1		2	5	11	15	16	84,0	8	

Indicator 11: *Treatment intensity per diagnosis group* *Required data: Total number hours of treatment per diagnosis group / total number of patients per diagnosis group*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	51			2	1	2	8	12	19	7	74,5	8	
Feasibility	51				1	3	8	12	15	12	76,4	8	

Indicator 12: *% time that all beds are occupied* *Required data: Number of days per year that all beds are occupied / 365*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	53	4	3	4	5	4	4	12	9	8	54,7	7	
Feasibility	52			1	6	4	7	15	10	9	65,3	7	

Subject: Treatment, patient care, and patient education
Structure indicators

Indicator 13:
An individual multidisciplinary rehabilitation plan is designed for each patient

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	56							4	14	38	100,0	9	
Feasibility	56						1	5	15	35	98,2	9	

Indicator 14:
Clinometry should be performed every two weeks

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	49		4	6	4	3	8	7	12	5	49,0	6	
Feasibility	50		1	1	7	3	9	11	9	9	58,0	7	

Indicator 15:
Clinometry outcomes are discussed with the patient, and the rehabilitation plan is adjusted if necessary

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	52	1	2		3	4	6	8	15	13	69,2	8	
Feasibility	51	2	1	2	4	3	8	11	13	6	58,9	7	

Indicator 16:
There should be the possibility to offer treatment six days a week

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	56	2	2	1	2	6	5	7	15	16	67,9	8	
Feasibility	55	2	1	4	1	5	9	7	13	13	59,9	7	

Indicator 17:
Healthcare providers should be aware of the fact that a patient has to do (whether possible) as much as possible themselves in the context of 'everything is rehabilitation'

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	57				1	1	3	8	18	26	91,2	8	
Feasibility	57			1		3	11	20	15	7	73,7	7	

Indicator 18:
Patients are encouraged to do physical exercises in addition to regular therapy

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	57				2	1	7	6	20	21	82,4	8	
Feasibility	55			1	2	4	13	17	13	5	63,6	7	

Indicator 19:
During the provision of information to patients, it is announced that a complaints procedure is in place

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	52	4	2	1	3	7	4	8	9	14	59,6	7	
Feasibility	52			2		5	2	8	14	21	82,7	8	

Subject: Treatment, patient care, and patient education
Process indicators

Indicator 20:
% treatment plans signed by a patient
Required data: Number of treatment plans signed / total number of treatment plans

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	46	8	2	5	1	2	5	5	10	8	50,0	6,5	
Feasibility	45	1	2	2	2	3	1	4	14	16	75,6	8	

Indicator 21:
% of patients who participated in the development of the rehabilitation plan
Required data: Number of treatment plans in accordance with patient co-decision / total number of treatment plans

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Structure**
Relevance	49	1			2	1	2	17	8	18	87,7	8	
Feasibility	48	1	1	5	3	3	2	18	10	5	68,7	7	

Indicator 22:
Number of progress conversations with the patient during treatment
Required data: Number of progress conversations during the treatment / number of weeks of admission

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	47			5	3	5	3	11	10	7	59,6	7	
Feasibility	46		1	3	2	6	8	13	6	7	56,5	7	

Indicator 23:
% of patients whose informal caregivers are involved in the rehabilitation process
Required data: Number of patients whose informal caregivers are involved in the rehabilitation process / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Structure**
Relevance	49	2		2		3	3	9	11	19	79,6	8	
Feasibility	47		1	6	1	4	10	13	8	4	53,2	7	

Indicator 24:
% of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist
Required data: Number of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Structure**
Relevance	45			3	3	2	5	12	11	9	71,1	7	
Feasibility	44	2	1	1	6	7	8	12	2	3	43,1	6	

Indicator 25:
% of patients where clinimetry is performed
Required data: Number of patients with a completed USER or Barthel / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	43	3	1	3	2	6	4	4	8	12	55,8	7	
Feasibility	43	4			3	6	2	4	12	12	65,1	8	

Indicator 26:
% of patients who received information (digitally or on paper) about the disease and rehabilitation process
Required data: Number of patients who received information (digitally or on paper) about the disease and rehabilitation process / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Structure**
Relevance	45	2		1	3	4	4	4	14	13	68,9	8	
Feasibility	45	3	1	2	1	3	10	3	15	7	55,6	7	

Subject: Treatment, patient care, and patient education
Outcome indicators

Indicator 27:
% of patients who achieved rehabilitation goals
Required data: Number of patients who achieved rehabilitation goals / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	43		1		2	1	2	12	12	13	86,0	8	
Feasibility	43		1	3	2	2	6	19	7	3	67,5	7	

Indicator 28:
% of patients with complications during treatment
Required data: Number of patients with complications during treatment / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	42		5	4	6	7	3	7	6	4	40,5	5	
Feasibility	42		5	6	4	9	3	6	5	4	35,7	5	

Indicator 29:
% of patients that is refused because of occupied beds
Required data: Number of refused patients because of occupied beds / total number of patients admitted

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	38	6	8	4	5	6	1	2	2	4	21,1	4	
Feasibility	37	4	5	3	6	6	5	3	3	3	24,3	5	

Indicator 30:
% mortality
Required data: Number of deceased patients / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	42	4	7	5	6	6	1	5	3	5	30,9	4	
Feasibility	39	1	4	5	1	2	1	2	7	16	64,0	8	

Subject: Admission
Structure indicators

Indicator 31:
Upon admission, an inventory was made of whether informal caregivers were able to support the patient in the home situation after discharge

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	47	1		1		4	3	1	19	18	80,8	8	
Feasibility	47	1		2	2	3	6	6	18	9	70,2	8	

Indicator 32:
Upon admission, it must be defined what the rehabilitation team can and cannot do for the patient to achieve an intended result

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	47			1		4	5	7	15	15	78,7	8	
Feasibility	46	1	2	2	2	3	7	8	16	5	63,1	7	

Subject: Admission
Process indicators

Indicator 33:
% of patients whose discharge criteria were discussed at admission
Required data: Number of patients for whom the discharge criteria were discussed at admission / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Structure**
Relevance	47		1	1		1	4	6	16	18	85,1	8	
Feasibility	46		2	2	1	2	10	8	15	6	63,0	7	

Indicator 34:
% admission interviews where informal caregivers of the patient were present
Required data: Number of admission interviews where informal caregivers of the patient were present / total number of admission interviews

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	46			1	1	3	3	2	17	19	82,6	8	
Feasibility	45		3		2	3	5	8	16	8	71,2	8	

Indicator 35:
% of patients whose needs of informal caregivers were identified upon admission
Required data: Number of assessments of needs of informal caregivers at admission / total number of admissions

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	45		2	4	1	3	7	8	12	8	62,3	7	
Feasibility	45	1	4	2	6	4	9	8	8	3	42,3	6	

Indicator 36:
% of patients whose medication was verified upon admission
Required data: Number of patients whose medication was verified at admission / total number of admitted patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	43		2	1			2	5	6	27	88,4	9	
Feasibility	43	1	1	1		2	3	3	8	24	81,4	9	

Indicator 37:
% of patients screened for malnutrition at admission
Required data: Number of patients screened for malnutrition at admission / total number of admitted patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	45			1	2	3	4	7	10	18	77,8	8	
Feasibility	43					1	3	9	13	17	90,6	8	

Subject: Discharge
Process indicators

Indicator 38:
% of patients whose informal caregivers felt sufficiently prepared for the patient's discharge
Required data: Number of patients whose informal caregivers felt sufficiently prepared for the patient's discharge / total number of discharged patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	42			3	1	2	7	7	11	11	69,1	8	
Feasibility	41	1	2	3	4	2	6	13	9	1	56,1	7	

Indicator 39:
% of patients whose transition to home did not went well due to insufficient preparation
Required data: Number of patients whose transition to home did not went well due to insufficient preparation / total number of discharged patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	39		10	3	1	1	3	7	9	5	53,8	7	
Feasibility	38	3	8	3	5	1	3	10	4	1	39,4	4,5	

Indicator 40:
% of patients whose medication was verified at discharge
Required data: Number of patients whose medication was verified at discharge / total number of discharged patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	42		1			2	2	4	15	18	88,1	8	
Feasibility	41	1		2	1	3	1	5	13	15	80,5	8	

Subject: Discharge
Outcome indicators

Indicator 41:
% of patients returning home per diagnosis group
Required data: Number of patients returning home / total number of admitted patients (calculate per diagnosis group)

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	41		1	1		1	5	10	13	10	80,5	8	
Feasibility	41				1		4	8	13	15	87,8	8	

Subject: Medical equipment
Structure indicators

Indicator 42:
Valid medical devices are used

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	39	1	1	1		2	3	5	10	16	79,4	8	
Feasibility	36	2	1	1		1	3	7	10	11	77,8	8	

Indicator 43: *Medical devices are inspected annually*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	37	1	1			4	2	4	8	17	78,3	8	
Feasibility	36			1		1	2	6	6	20	89,0	9	

Indicator 44: *Medication is prescribed through an electronic prescription system*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	41				2			1	6	32	95,0	9	
Feasibility	41							1	4	36	100,0	9	

Subject: Internal quality management
Structure indicators

Indicator 45: *When a patient disease during admission, this is systematically analysed*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	39	1	6	1	2	6	8	5	3	7	38,4	6	
Feasibility	37	1	4		1	8	5	7	3	8	39,1	6	

Indicator 46: *When complications arise during admission, this is systematically analysed*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	41		1	2	2	7	5	5	11	8	58,5	7	
Feasibility	40	1	2	1	4	8	4	7	7	6	50,0	6,5	

Indicator 47: *A culture in which all incidents are reported prevails*													
		Low			**Medium**			**High**			**% Highest tertile**	**Median**	**Conclusion**
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	43				1	1	1	5	19	16	93,0	8	
Feasibility	41				4	3	2	9	17	6	78,1	8	

Indicator 48:
Developments around evidence-based treatments are monitored and an annual evaluation is made to see whether new developments can be implemented

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	42			1		5	3	8	14	11	78,5	8	
Feasibility	41		4	3	1	7	5	11	7	3	51,2	7	

Subject: Internal quality management
Process indicators

Indicator 49:
Percentage of patients who completed a patient satisfaction survey
Required data: Number of patients who completed a patient satisfaction survey / total number of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	40				2	3	3	6	11	15	80,0	8	
Feasibility	40			1	1	3	8	7	11	9	67,5	7,5	

Indicator 50:
% MIC reports that have been systematically analysed
Required data: Number of MIC reports that have been systematically analysed / total number of MIC reports

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	38		1	2		2	2	5	7	19	81,6	8,5	
Feasibility	37			2		4	2	7	7	15	78,3	8	

Indicator 51:
% of rehabilitation trajectories that is evaluated by healthcare providers during the last multidisciplinary consultation
Required data: Number of rehabilitation trajectories that is evaluated by healthcare professionals during the last multidisciplinary consultation / total number of completed rehabilitation trajectories

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	41		2	2	3	2	1	3	14	14	69,8	8	
Feasibility	41		2	1	4	2	1	1	18	12	75,6	8	

Subject: Internal quality management
Outcome indicators

Indicator 52:
% of patients satisfied with the care received
Required data: Number of patients who completed NPS positive (= higher than 6) / total number of patients who completed the patient satisfaction survey

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	38		1			2	1	8	13	13	89,5	8	
Feasibility	38			1			1	10	14	12	94,7	8	

Subject: Staffing
Structure indicators

Indicator 53:
Are personnel adequately qualified to provide geriatric rehabilitation care?

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	44				1	1	2	6	14	20	90,9	8	
Feasibility	44			2	1	4	4	10	18	5	75,0	8	

Indicator 54:
Are personnel sufficiently competent to treat and provide care to patients with psychological problems?

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	43		1		3	3	9	7	14	6	62,9	7	
Feasibility	43		1	4	3	9	11	11	4		34,9	6	

Indicator 55:
There is a doctor specialised in geriatric rehabilitation medicine present

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	42	3		1		1	2	2	9	24	83,3	9	
Feasibility	42	4	1		1	2		5	6	23	81,0	9	

Indicator 56:
A doctor specialised in geriatric medicine must always be on call

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	43		1					1	5	36	97,7	9	
Feasibility	43						1		5	37	97,7	9	

Indicator 57:
At least one GZ-psychologist must be active within the geriatric rehabilitation care

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	44	3	1	2	2	1	4	1	8	22	70,5	8,5	
Feasibility	44	2	1	2	1	2	3	4	11	18	75,0	8	

Indicator 58:
There must be 24-hour availability of level 4 or 5 nurses

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	43			1			1	3	6	32	95,4	9	
Feasibility	42			1	1			9	5	26	95,2	9	

Indicator 59:
Is the formation of personnel sufficiently enough to prevent the need of stand-in personnel?

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	42			1	3	5	3	8	12	10	71,4	8	
Feasibility	41	2	2	1	2	7	6	11	7	3	51,2	7	

Indicator 60:
Capacity planning is made based on occupancy of beds and severity of patients

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	40			3		5	2	5	15	12	80	8	
Feasibility	40		2	2	2	6	4	12	10	2	60	7	

Indicator 61:
In addition to the multidisciplinary consultation and the doctor's visit, there is time and possibility for personnel to exchange knowledge

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	43				1	3	1	9	16	13	88,3	8	
Feasibility	42	1		3	1	7	6	7	10	7	57,2	7	

Subject: Personnel
Process indicators

Indicator 62:
% understaffing of nursing personnel
Required data: Number of days with understaffing of nursing personnel per year / 365

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	36		2	2	2	9	3	7	5	6	50,0	6,5	
Feasibility	34		5	4	4	7	4	7		3	29,4	5	

Indicator 63:
% understaffing of practitioners
Required data: Number of days with understaffing of practitioners per year / 365

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	36		2	1		7	6	8	5	7	55,5	7	
Feasibility	34	1	5	2	3	6	6	5	3	3	32,3	5,5	

Indicator 64:
% nursing staff educated in geriatric rehabilitation care
Required data: Number of nursing staff educated in geriatric rehabilitation care / total number of nursing staff

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	37	2	1	1	1	1	3	15	6	7	75,6	7	
Feasibility	35	2	2	2	2	2	6	10	4	5	54,3	7	

Indicator 65:
% practitioners educated in geriatric rehabilitation care
Required data: Number of practitioners educated in geriatric rehabilitation care / total number of practitioners

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	34			1	3	2	4	8	9	7	70,6	7	
Feasibility	31			3		3	7	11	4	3	58,1	7	

Indicator 66:
% of nursing staff that annually participates in training, education, or courses
Required data: Number of nursing staff that annually participates in training, education, or courses / total number of nursing staff

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	40					7	5	8	9	11	70,0	7,5	
Feasibility	37			2		5	8	10	5	7	59,4	7	

Indicator 67:
% of practitioners that annually participates in training, education, or courses
Required data: Number of practitioners that annually participates in training, education, or courses / total number of practitioners

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**Selection**
Relevance	36				1	1	5	9	11	9	80,6	8	
Feasibility	34			1	2	3	4	7	12	5	70,6	7,5	

Indicator 68:
% of nursing personnel with a higher vocational education degree
Required data: Number of nursing personnel with a higher vocational education degree / total number of nursing personnel

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	36	2	1	2	3	5	5	3	12	3	49,9	6,5	
Feasibility	33		2	3	3	4	7	6	4	4	42,4	6	

Indicator 69:

% practitioners with knowledge of different conversation techniques

Required data: Number of practitioners with knowledge of different conversation techniques / total number of practitioners

		Low			Medium			High			% Highest tertile	Median	Conclusion
	Total	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**			**No selection**
Relevance	37			1	5	5	3	8	9	6	62,1	7	
Feasibility	35	1	1	3	4	6	7	6	7		37,1	6	

Appendix 6 Transformation of process indicators

Table 8 Transformation of process indicators to structure indicators

Initial process indicators	**New structure indicators**
% of patients whose informal caregivers are involved in the rehabilitation process	Patient's informal caregivers are involved in the rehabilitation process
% of patients who participated in the development of the rehabilitation plan	Patients are involved in the development of the rehabilitation plan
% of patients with informal caregivers that were present during treatment by a physiotherapist or occupational therapist	Patient's informal caregivers are present during treatment by a physiotherapist or occupational therapist
% of patients who received information (digitally or on paper) about the disease and rehabilitation process	Patients receive information (digitally or on paper) about the disease and rehabilitation process
% of patients whose discharge criteria were discussed at admission	Discharge criteria are discussed at admission