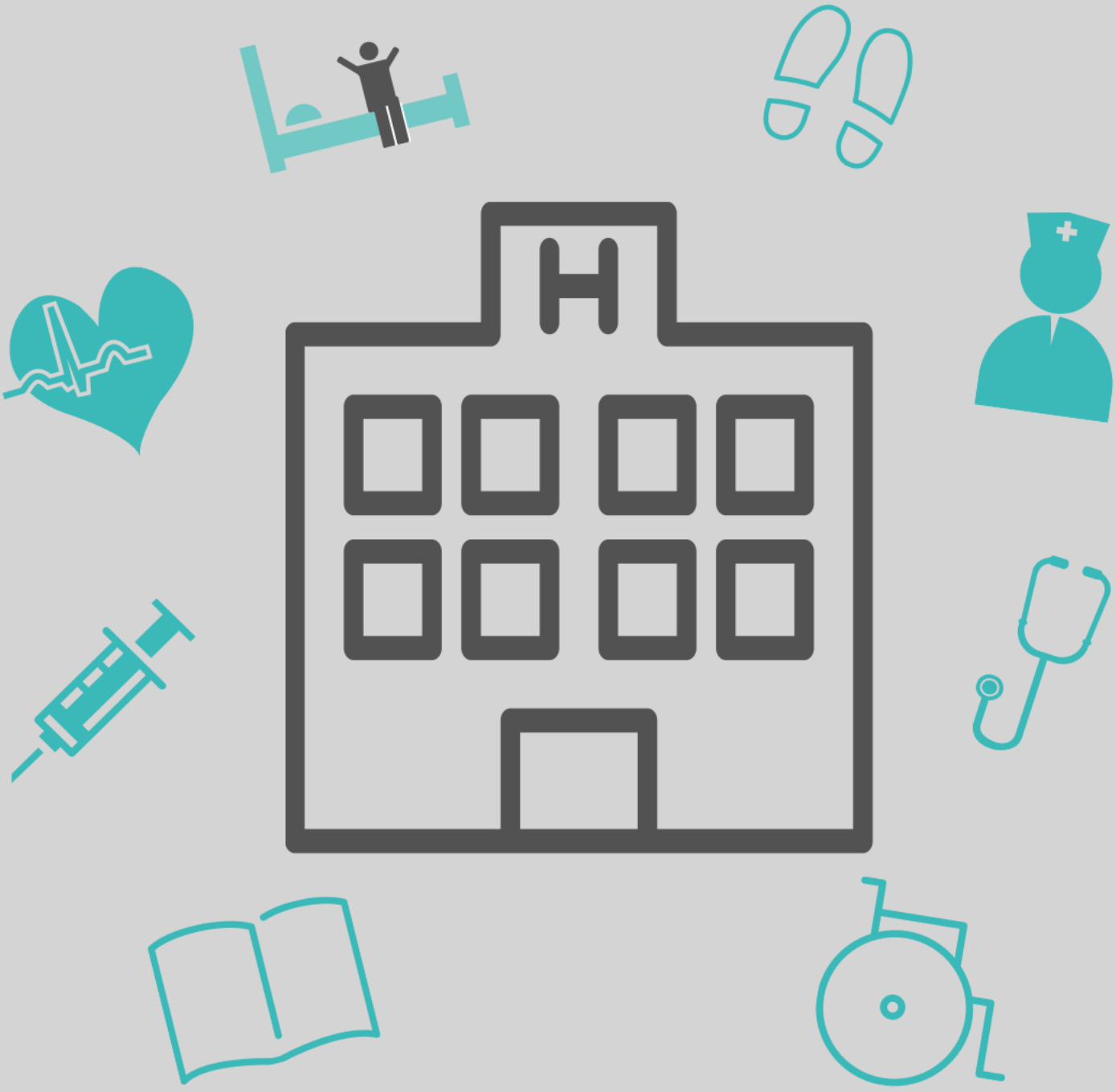
Which factors influence patients' physical activity?

An analysis of the perspectives of hospitalized patients and health care professionals



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Abstract

Introduction Hospitalization is often associated with adverse outcomes, mainly due to patients' frequent bed rest episodes and a low mobility. This can result in the inability to individually perform basic Activities of Daily Living, often leading to a Hospitalization-Associated Disability (HAD). HADs often occur despite appropriate management of the reason for hospitalization and it serves as an inhibiting factor of recovery for many patients. HADs need to be prevented to increase patients' health. This can be done by increasing patients' physical activity, which is currently too low. Unknown is which factors influence patients' physical activity and how health care professionals (HCP) are involved in patients' physical activity.

Objective To give an overview of factors that influence patients' physical activity by gaining insight in the perspectives of patients and HCPs with regard to the daily physical activity of patients.

Method Semi-structured interviews with patients and three types of HCPs were conducted at two departments of UMC Utrecht. Convenience- and snowball sampling lead to 17 participants, of which eight patients and nine HCPs. Patients were asked about their own physical activity during hospitalization and whether the hospital needs any improvements in the promotion of physical activity. HCPs were asked about their own perceptions regarding their responsibilities in promoting physical activity among patients.

Results Interviews showed that patients' low physical activity is mostly caused by a poor physical state. Physical state has a major influence on patients' physical activity, much more than lifestyle and attitude regarding physical activity seemed to have. The hospitals environment was perceived boring and was therefore not motivating patients to be physically active. Patients' expectations to lay in bed during hospitalization, together with their lack of knowledge on the importance of physical activity for recovery, contribute towards the lack of physical activity. Additionally, HCPs do not structurally provide information regarding physical activity towards patients. HCPs often do not know what to advice patients in addition to walking. Lack of time inhibits HCPs to assist patients during physical activity. Nurses, physiotherapists and doctors all believe they are responsible in promoting physical activity, although every type of HCP should fulfil a different role.

Discussion Physical activity is not yet seen as part of a hospital admission, probably because it is not seen as 'real' medical care, and because of the lack of knowledge of patients and HCPs. Although it is not included in the daily structure of patients and HCPs, it was clear that patients and HCPs are willing to increase physical activity. Every patient has different needs and abilities regarding physical activity, which is very important to take into account during the development of an intervention.

Recommendations To increase patients' physical activity, and thus prevent HAD occurrences, knowledge should be improved, and a clear structure for patients as well as HCPs should be introduced. An intervention should be as tailored as possible, since patients' needs differ greatly. The provided intervention ideas in this research serve as a great basis of the intervention of UMCU. Evaluation of the project with patients and HCPs is advised to improve the project and make sure it will be as effective as possible.

Conclusion This study can be evaluated as a great first step in increasing patients' physical activity and thus in improving patients' health.

Content

List of Figures

List of Tables

Definition

Patient	A person admitted to the hospital.
Physical activity	This study has used the same definition as used by the UMCU in Beweging project. Meaning that in the majority of this study, physical activity is defined as being out of bed and being active, for instance by taking a walk down the hall of the department. Exact definition depends on patients' physical state. For patients with a poor physical state, getting out of bed or sitting straight up is already considered as physical activity. For other patients, a walk down the hall of the department or through the hospital is seen as physical activity. The frequency also depends on the patients' physical state.

Abbreviations

ADL	Activities of Daily Living
AIOS	Arts In Opleiding tot Specialist / Doctor in training to become a specialist
HAD	Hospitalization-Associated Disability
HCP	Health Care Professional
MDL	Maag, Darm, Lever / Stomach, Bowel, Liver
UMCU	University Medical Centre Utrecht

1 Introduction

Hospitalization is often associated with adverse outcomes, mainly due to functional decline (Pierluissi, Francis & Covinsky, 2014; Cattanach, Sheedy, Gill & Hughes, 2014; Brown et al., 2007). This functional decline occurs due to frequent and sometimes inevitable bed rest episodes, which are associated with adverse effects on the cardiovascular-, respiratory- and musculoskeletal system (Cattanach et al., 2014; Bernhardt, Dewwy, Thrift & Donnan, 2004). Studies have shown that patients spent more than 50% of their time in bed and only 13% of their time on performing physical activities (van de Port, Valkenet, Schuurmans & Visser-Meily, 2012). A study in Denmark showed that on average, patients spend 17.4 hours a day lying and the median time spent standing or walking was 0.8 hours a day (Bodilsen et al., 2013). Recent measurements in UMC Utrecht showed that patients at the geriatrics department only spend 7% of their day on walking or standing (Valkenet, 2016).

A 30-year follow-up study lead to a major finding that three weeks of bed rest resulted in a greater deterioration in physical work capacity and cardiovascular health, than 30 years of ageing (McGavock et al., 2009). Research over the past decades has shown that bed rest causes a muscle mass decrease of 1-5% per day, depending on age, disease severity and hospital unit (Ferrando, Paddon-Jones & Wolfe, 2006). A low mobility, meaning being limited to a bed or chair, also causes functional decline (Brown et al., 2004). Due to bed rest and a low mobility, muscle activity and thus muscle strength declines, leading to a decreased ability of patients to be physically active (Brown et al., 2004). Physical activity becomes more of an effort and the patient may be acting in a vicious circle of not being physically active.

1.1 Hospitalization-Associated Disability

Functional decline due to hospitalization is called a Hospitalization-Associated Disability (HAD). This entails that a patient is unable to individually perform one of the basic Activities of Daily Living (ADL): bathing, dressing, rising from bed or a chair, using the toilet, eating, or walking across a room (Covinsky, Pierluissi & Johnston, 2011; Brown et al., 2004).

HAD often occurs despite appropriate management of the reason for hospitalization and it serves as an inhibiting factor for recovery for many patients (Pierluissi, Francis & Covinsky, 2014). An HAD is an addition to the illness that caused the individual to be admitted to the hospital. As a result of an HAD, the well-being of patients can be less than prior to hospital admission. Especially concerning patients who could perform the ADLs individually at home, but are admitted to the hospital due to an acute illness, where they stop performing the ADL's in a frequent matter. Functional decline arises, leading to a new disability as a result of hospitalization (Covinsky et al., 2011). Consequently, the patient who developed an HAD is now dependent upon the help of health care professionals for one or more ADLs in- and outside the hospital. This can result in increased lengths of stay and the need for home care after hospitalization (Brown et al., 2004).

The effects of hospitalization on functional decline have mostly been studied among elderly, since the effect on their overall health is of more influence than among younger people (Pierluissi, Francis & Covinsky, 2014; Brown et al., 2004; Sager et al., 1996). According to Boyd et al. (2008), 33% of the elderly has to cope with functional decline. In addition, at least 30% of the older adults that survived an acute hospitalization die in the year after discharge (Walter et al., 2001). Among patients of 85 years and older, 50% experiences functional decline (de Vos et al., 2015). Moreover, functional decline during hospitalization increases the risk of developing a new disability in the year after discharge (Walter et al., 2001). Although studies among the effects of HADs have mostly been done among elderly, every patient is at risk of getting an HAD (Ettinger, 2011).

1.1.1 Preventing Hospitalization-Associated Disabilities

Even though studies regarding HADs have mostly been done among the elderly, HADs need to be prevented among patients of every age group and physical condition. Unfortunately, prevention receives low priority in clinical care, possibly because of the current priorities and focus on providing medical, effective and rapid care (Admi, Shadmi, Baruch & Zisberg, 2015; Boltz et al., 2012). Additionally, looking at the Dutch care, this is primarily directed towards treatment rather than prevention (Saltvedt et al., 2002).

Important in preventing HADs is increasing the daily amount of physical activity, which is often recommended to patients during their hospital admission. The reality is that many patients do not achieve the recommended amount of daily activity, namely 30 minutes a day, for 5 days a week on a moderate intensity (Kenniscentrum Sport, 2015; Cattanach et al., 2014; Bernhard et al., 2004). Since preventing an HAD is preferable over treating an HAD, several Dutch hospitals are developing programs to increase patients' physical activity, like Ziekenhuis Gelderse Vallei, Sint Lucas Andreas Ziekenhuis, and now also the University Medical Centre of Utrecht.

An important first step in preventing HADs, is to identify factors that influence patients' physical activity. A distinction can be made between factors that are patient related and factors related to the hospitals environment (Hoogerduijn, Buurman-van Es & Schuurmans, 2007; Palmer, 1995).

Patient related factors are the patients' current condition and the patients' attitude concerning physical activity. Altering a negative attitude into a positive one, may increase the amount of patients' physical activity. Factors relating to the hospital environment are for instance the availability of equipment, but maybe more importantly, the health care professionals (HCP). HCPs play a crucial role in the activities and recovery of patients (van de Port et al., 2012; Holman & Lorig, 2004). This has also been addressed by Koelen and Lindström (2005), who mentioned that, in an ideal situation, HCPs provide options to patients that enable them to make the healthy choice: be physically active. Interventions to increase physical activity have been developed, but are often unsuccessful due to ineffective delivery by HCPs (Huijg et al., 2015). This can be related either to the intervention itself or to the hospital setting and the willingness and perceived importance of HCPs.

It is important to identify how patients and HCPs perceive the importance of physical activity for patients' recovery and health. It is of interest to get insight in the reasons patients lack physical activity, to better understand how physical activity can be increased. Additionally, it is of interest to know how HCPs think about their own role and contribution to patients' physical activity. HCP are able to encourage patients to be more physically active (Brown et al., 2007). Ideas of HCPs regarding the promotion of physical activity are not known due to lack of research (Huijg et al., 2015).

1.2 Objective

The primary research objective is to give an overview of factors that influence patients' physical activity. This will be done by gaining insight in the perspectives of patients and HCPs with regard to the daily physical activity of patients. In the long term, recommendations can be done for the development of an effective intervention that will decrease the incidence of HADs by increases physical activity.

1.3 Societal relevance

The perspectives of patients and HCPs regarding physical activity among patients will show potential factors of influence on the physical activity of hospitalized patients. The results of this study will contribute to the development and implementation of strategies that promote physical activity among patients. If the implementation of such strategies is successful, patients will be healthier at times of discharge and thus will need less home-care. Healthier patients will also lower the health care expenditures for individuals as well as society.

This study will be performed at UMC Utrecht (UMCU), to assist the hospital in implementing their own physical activity project. Therefore, results of this study will guide the UMCU in implementing the project successfully and in creating and sustaining a physically active hospital.

1.4 Scientific relevance

A study by Brown et al. (2007) identified multiple barriers involved in the mobility of hospitalized older patients in a University Hospital in America. Perspectives of both patients and nurses regarding physical activity of patients were identified. It is likely that the views about physical activity have been changed over the last decade, making it important to conduct this kind of study again. This current research will include multiple types of health care professionals. To the researcher's knowledge, no study regarding the perspectives of both patients and multiple types of health care professionals has been done in the Netherlands before. Performing a study similar to the one of Brown et al. (2007) in a different country, with a broader age group, and multiple types of HCPs, might present new perspectives and factors influencing patients' physical activity.

1.5 Research questions

This research tries to answer the following research question:

> *What are the perspectives of both patients and health care professionals on patients' physical activity and what factors may promote the daily physical activity of patients, according to patients and health care professionals?*

To answer this research question, the following sub-questions are formulated:

1. *In what way do motivation-, intention- and behavioural factors of the I-Change Model influence patients' perspectives and behaviour regarding physical activity during hospitalization?*
2. *How do health care professionals perceive their role and accompanying tasks in promoting the physical activity of patients and what hampers the performance of that role?*

The first sub-question will focus on hospitalized patients and may lead to identification of patients' perspectives that influence their daily physical activity. The perspectives shared by patients will address factors of the I-Change Model. The I-Change Model describes multiple factors that influence intention and behaviour (De Vries et al., 2003). The motivation-, intention- and behavioural factors of the I-Change Model are influenced by barriers as well as predisposing-, awareness-, information- and ability factors. In Chapter 2: Theoretical Framework, the I-Change Model will be further explained.

The second sub-question will focus on HCPs and will address the perceived role of HCPs in promoting patients' physical activity. Four tasks for HCPs are developed regarding the promotion of physical activity among patients, which will be explained in Chapter 2: Theoretical Framework. These tasks are seen as part of the HCPs role and will be addressed to investigate if HCPs do perceive these tasks as part of their job. Perceptions about their own responsibilities and possible barriers with regard to four developed tasks will also become known.

1.6 Thesis structure

This thesis is divided into several chapters. The next chapter, ***Theoretical Framework,*** describes theories that guided this study. This is followed by an explanation of the ***Methodology*** of this study, including the design, participants, data collection and analysis. Subsequently, the chapter ***Results*** will describe the findings of this study, which is followed by the ***Discussion***. This includes a discussion of the results and the strengths and limitations of this study. Recommendations for future research and practical application will also be provided. This thesis ends with a ***Conclusion***. The ***Appendix*** contains additional documents of this study.

2 Theoretical Framework

The theoretical underpinning of this research will be discussed in this chapter. First, the theoretical model that will be used to answer the first sub-question will be discussed. Hereafter, a description of the theory used to answer sub-question two will be given.

2.1 I-Change Model

The first sub-question of this study focuses on patients' perspectives and on identifying factors that influence patients' physical activity, according to patients. A well-suited model to study this is the comprehensive I-Change Model of De Vries et al. (2003), which stands for Integrated Change Model. It is an integrated model because of the use of multiple behavioural theories, namely: the Theory of Planned Behaviour (Ajzen, 1991), the Health Belief Model (Janz & Becker, 1984), the Precaution Adoption Model (Weinstein, 1988), the Social Cognitive Theory (Bandura, 1986) and the Trans Theoretical Model of Change (Prochaska & DiClemente, 1983). Due to the comprehensiveness of this model, it is very useful to identify factors that influence patients' physical activity.

The I-Change Model describes that behaviour is influenced by a variety of factors, either focusing on personal-, social- or environmental aspects, or all combined. The I-Change Model can be seen in Figure 1.

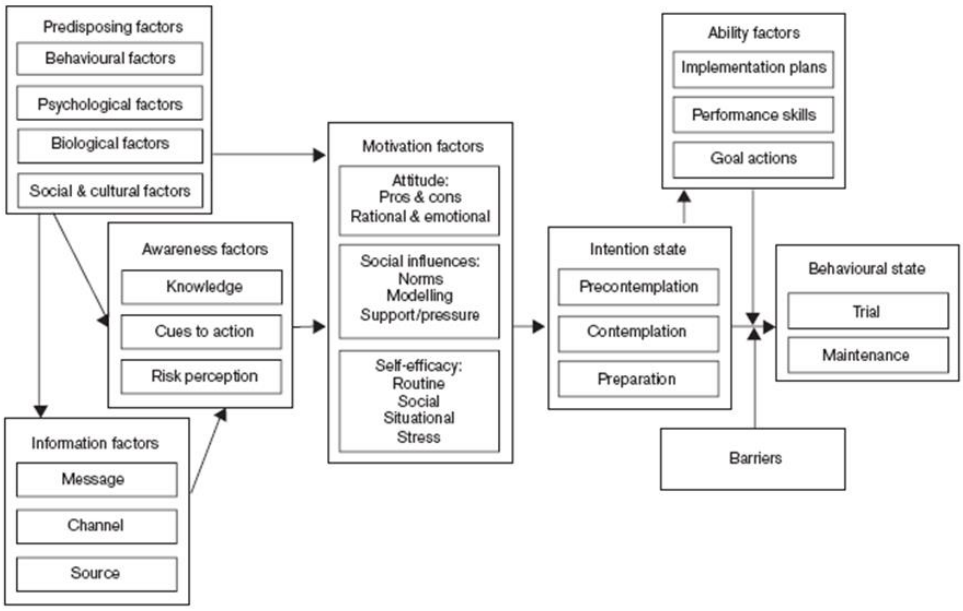

Figure 1: I-Change Model (De Vries et al., 2003)

2.1.1 Previous use of the I-Change Model

The I-Change Model has mostly been used to identify factors that influence certain behaviour, often with the purpose to alter this behaviour. The first use of the I-Change Model was in a smoking behaviour study (De Vries et al., 2003). This study included six countries and showed that factors of the model vary in importance per country (De Vries et al., 2003). It is likely that this need for a different approach will also be applicable towards hospitalized patients and physical activity promotion.

Physical activity has not been studied by use of the I-Change Model, but it has been studied by using its precursor: the ASE-Model (De Vries, 1993). This stands for Attitude, Social norm and Efficacy. For example, one study focused on habit as a predictor of physical activity among older adults (Bree et al., 2015). Another study showed factors associated with physical activity in children and adolescents with a physical disability (Bloemen et al., 2014), and a third study used the ASE-Model and partly the I-Change Model to understand what games were needed to positively stimulate physical activity (Hoyng, Deen & Sturm, 2011). These studies have shown that physical activity can be very well studied by use of a behavioural model like the I-Change Model.

The Knowledge Centre Sport Netherlands promotes the model on their website to inform readers about ways to change behaviour (Kenniscentrum Sport, 2016). It is thus not only a useful model for research purposes, but also useful as an educational tool for people to show how behaviour is constructed.

To conclude, the I-Change Model has been used to identify which factors influence certain behaviour and whether the amount of influence differs between groups of people. This makes the I-Change Model applicable for this study, since it can show which factors influence physical activity, and if this differs between different patient groups.

2.1.2 Explanation of the model

As visible in Figure 1, the I-Change Model consists of eight main factors that have an influence on the performance of certain behaviour. These factors are interconnected and have a complex relation. The eight main factors of the model will be explained by applying them to the study topic.

Predisposing factors Starting in the upper left corner of the model, the predisposing factors are the distal factors that influence behaviour. These factors consist out of the lifestyle and other personal factors of a person. The more frequently people exercise, the more they are expected to be physically active in the near future (Giles-Corti & Donovan, 2002). This study implied that an active lifestyle correlates with the amount of activity in the near future. The predisposing factors are related to the patients' lifestyle prior to hospital admission.

Information factors Information factors entail information that is provided by others, such as friends and family. The hospital and HCPs are also part of these factors in this study. The message itself is important, but also how the message is spread and by who (Eastin, 2001). Doctors have long been seen as more credible and trustworthy than nurses have and this often entails that patients act more upon the information provided by doctors (Collier, 2012; Eastin, 2001). On the other hand, doctors are more and more seen nowadays as medical experts who do not understand the feelings of the patient (Jotkowitz & Clarfield, 2005; NRC, 2013).

Awareness factors The awareness factors entail *knowledge, cues to action* and *risk perception*. Having *knowledge* about the importance of physical activity for recovery affects one's behaviour. According to the study of Buttery and Martin (2009), hospitalized patients do not always understand that physical activity is important for recovery. It is assumed that patients know physical activity is healthy in normal circumstances, since it is widely discussed and has been addressed in many national and international health campaigns (Rijksoverheid, 2016; WHO, 2016a).

Cues to action are triggers that influence behaviour (Ariyasriwatana, Buente, Oshiro & Streveler, 2014). Media campaigns that promote physical activity raise awareness and serve as a cue to action (Cavill and Bauman, 2004). The illness of a family member, advice from someone and - in this study - seeing other patients being physically active can also serve as a cue to action (Janz & Becker, 1984).

The Precaution Adoption Model (Weinstein, 1988) suggests that unhealthy or risky behaviour can only change when the individual has a certain *risk perception* regarding the performance of the behaviour. The perceived risk is influenced by the persons idea of how likely it is to contract an illness and how serious the illness is (Weinstein, 1988). For example, how serious it is to get an HAD and to experience an HAD.

Risk perception can also have a more negative effect on physical activity. For instance when a patient is afraid to fall (a risk when being physically active). A study about discomfort and physical activity found that expected discomfort and risks related to being physically active, resulted in a lower physical activity (Poulton, Trevena, Reeder & Richards, 2002), which was supported by Brown et al. (2007).

Motivation factors The motivation factors are based on the Theory of Planned Behaviour, which explains that behaviour is performed because of an intention. This intention is influenced by one's attitude, subjective norm / social influences and self-efficacy regarding the type of behaviour (Ajzen, 1991).

Attitude consists of the personal beliefs and the expectations of the consequences of the behaviour. The more pleasure and benefits are perceived regarding physical activity, the more it is performed (Deforche, De Bourdeaudhuij & Tanghe, 2004). Vilhjalmsson and Thorlindsson (1998) found that physical activity is higher among those who feel that sports and health are important. Additionally, having an (in)active lifestyle affects the attitude regarding physical activity (Bree et al., 2015). These studies make it clear that attitude is influenced by predisposing- as well as awareness factors.

The *subjective norm* entails social influence, and whether the person agrees with opinions of his or her social environment regarding the behaviour. Information and support provided by others affects someone's motivation to change the behaviour (Kahn et al., 2002). Patients can be encouraged by family, friends, HCPs, and other patients. Multiple studies among hospitalized patients found that social support is seen as one of the main facilitators for physical activity (Thorpe, Kumar & Johnston, 2013; AlQuaiz & Tayel, 2009; Kahn et al., 2002).

Whether the person beliefs he or she can perform the type of behaviour is called *self-efficacy* (Ajzen, 1991). Self-efficacy was found an important mediator of activity levels; patients who trusted themselves to be capable of performing physical activity were more likely to be physically active (Ewart et al., 1986). A high self-efficacy often leads to more commitment to the performance and maintenance of the behaviour (Williams & French, 2011).

Intention The Transtheoretical Model of Change shows that behavioural change entails six stages (Prochaska & Diclemente, 1982). Three of these six stages are part of the intention: the pre-contemplation stage, the contemplation stage and the preparation stage. Persons enter the first stage en whenever they are more involved in changing the behaviour, they will enter another stage.

Ability factors and barriers Intention does not always lead towards behaviour, since an intention-behaviour gap can occur. *Ability factors* discuss implementation plans, performance skills and goal actions. Not having an implementation plan or goal increases the intention-behaviour gap and it is likely that the behaviour will not be performed (Sniehotta, Scholz & Schwarzer, 2005). The actual skills of an individual also influence whether the behaviour can be performed, such as being able to walk without assistance of an HCP. Absence of stairs, unavailable staff, or hinder of medical devices can serve as a *barrier* for physical activity (Brown et al., 2007).

Behaviour Once the person has reached the phase of actually performing the behaviour, either the behaviour can last shortly or it can lead to long-term behavioural change. This is also described by the last three stages of the Transtheoretical Model of Change (Prochaska & Diclemente, 1982). As explained earlier, the first three stages are part of the intention. The fourth stage is the action stage, in which the person performs the behaviour. After this stage, two stages can appear: relapse and maintenance. The person can either relapse into old habits and stop performing the behaviour, or the performance of behaviour is maintained.

2.1.3 Summary I-Change Model

To summarize, the I-Change Model explains and predicts behaviour by addressing a variety of factors, integrated from multiple behavioural theories that influence behaviour. Motivation factors as attitude, social influences and self-efficacy are the main factors that influence one's intention to perform certain behaviour. These motivation factors, in turn, are related to a person's lifestyle and knowledge. The actual implementation from intention towards behaviour can be disturbed by barriers in- and outside the individual. Goals and plans related to the behaviour can facilitate the implementation from intention towards behaviour.

2.2 Health promotion activities for health care professionals

The second sub-question of this research focuses on identifying how health care professionals perceive their role in promoting physical activity among patients.

Promoting physical activity is a health promotion activity of which the WHO has established the following definition: *to enable people to increase control over their health by making them more aware of health related behaviour and to strengthen skills to perform the health related behaviour* (WHO, 2016b; WHO, 1986). Health promotion is about promoting health in such a way that it will lead to a better quality of life and thus less mortality, morbidity and disability (WHO, 2016b; Nutbeam, 1998).

The WHO has formulated three strategies of health promotion that are also seen as the prerequisites of health promotion (WHO, 1986):

- Advocate — promote the importance of health by addressing health as a resource for social, economic and personal development
- Enable — provide people with information and skills needed to make healthy choices
- Mediate — coordinate action by all parties involved in health promotion

Health promotion in the setting of this study focusses on discharging patients in a healthy condition, with a (relatively) high quality of life and without Hospitalization-Associated Disabilities. One of the things that will support achieving this is promoting physical activity among patients. HCPs serve a major part in this since they are of great influence on patients' physical- and mental health (Holman & Lorig, 2004; van de Port et al., 2012; Brown et al., 2007).

2.2.1 The role of health care professionals

Promoting physical activity among patients is not yet part of the daily routine of HCPs (Huijg et al., 2015). The job related tasks of a health care professional are mostly directed towards care and cure, whereas health promotion is very much linked to prevention. In order to increase patients' physical activity, it is important that health promotion activities are incorporated into a health care professionals' job.

Based on the prerequisites of health promotion, one can distinguish four tasks for HCPs. These tasks are developed for this research and focus on promoting patients' physical activity:

1. Informing — inform patients about the importance of physical activity
2. Advising — advise patients in ways how to increase physical activity
3. Assisting — assist patients during the performance of physical activities
4. Collaborating — collaborate with other HCPs to coordinate and promote physical activity in a way that it will be a single approach

It is important to know whether HCPs agree with those tasks and if they perceive these tasks as their responsibility. A positive attitude towards the health promotion activities enhances the amount of patients' physical activity (Huijg et al., 2015). Any barriers regarding the performance of the tasks will also be addressed. This knowledge supports the development of an intervention that focuses on promotion of physical activity.

The following section provides an elaboration on the four developed tasks:

Informing Patients receive information about their condition and medical procedures by HCPs. Information concerning recovery, like the importance of physical activity, is often not provided (Callen et al., 2004). This results in a lack of knowledge among patients concerning the importance and thus in less physical activity.

Advising HCPs must also advise patients on how they can be physically active. Giving clear instructions can positively influence the patient's self-efficacy and that can increase patients' physical activity (Koelen & Lindström, 2005; Nutbeam, 1998). A survey among adults in health maintenance organizations indicated that patients expect advice from health professionals regarding diet, exercise and substance use (Vogt et al., 1998).

Assisting Aside from providing information, patients' physical activity levels can be enhanced by the involvement of the medical staff. Daily activities, such as washing and dressing, can be used to stimulate the patient to be more active (van de Port et al., 2012). Assisting patients in being physically active is not always perceived as the norm (Kneafsey, Clifford & Greenfield, 2013). This might be a potential reason for the lack of assistance. According to an observational study on the frequency of hallway ambulation among hospitalized older adults, nurses can take more responsibility when it comes to patients' walking routines (Callen et al., 2004).

Collaborating It is important that the entire medical staff involved in patients' recovery agrees with and acts upon the health promotion activities (Huijg et al., 2015). A survey among Dutch nurses showed that nurses are not always positive about the collaboration with doctors, although it is extremely necessary for HCPs to work together to provide the right care and a single approach (de Veer, Francke & Poortvliet, 2003).

5 A's Construct

The four tasks are developed for the purpose of this study and thus not validated, though they do share great similarities with the Five A's Construct for Clinical Counselling. This construct was originally developed by the National Cancer Institute of the US to change smoking behaviour (Glynn & Manly, 1992) and has later been adapted by the Canadian Task Force on Preventive Health Care (Whitlock, Orleans, Pender & Allen, 2002). The Five A's Construct argues that these 5 A's - Asses, Advise, Agree, Assist and Arrange – are necessary to stimulate others to achieve behavioural change. A brief description of the 5 A's will show how this construct is related to the four tasks for HCPs developed for this research:

- Assess — assess behavioural health risk: which patients are in need of an intervention and is the patient ready for behavioural change
- Advise — give clear, personalized advice to the patient. Include information about harms and benefits related to the behaviour
- Agree — make sure that the patient agrees with the health professional that physical activity is important. Shared decision making makes the patient feel autonomous and increases patients personal control
- Assist — aid the patient in helping to achieve the intended behaviour / goal. Teach patient self-management skills, enabling the patient to undertake the necessary steps
- Arrange — follow-up, to provide ongoing assistance. Evaluate and adjust the steps. Follow-up allows for support of maintenance and prevents relapse of the behaviour

Providing patients with information, helping them in the performance of the desired behaviour and making sure the behaviour is maintained, are concepts that reoccur in the four developed tasks as well as the 5 A's construct.

Barriers regarding the four tasks

Performance of the four developed tasks depends on whether the HCP perceives those tasks as applicable to the job in question. For example, a nurse might belief that assisting patients in physical activity is more the responsibility of the physiotherapist than of a nurse. Results of a study among nurses indicate that nurses perceived their role as 'safe keepers'; making sure that no (additional) harm was done to the patient (Kneafsey et al., 2013). Walking with patients and helping them towards the toilet were seen as activities for the nurses. Any other activities, such as walking down the hall, were seen as the physiotherapists role, since those activities were more rehabilitation related (Kneafsey et al., 2013). These perceptions may hamper the performance of the tasks and thus the promotion of physical activity among patients.

Other barriers regarding the four tasks found in previous research are lack of time to assist and lack of knowledge (Kneafsey et al., 2013). The low amount of staff members that are present to assist was another recurrent barrier in the assistance of patients' physical activity (Kneafsey et al., 2013; Doherty-King & Bowers, 2011; Brown et al., 2007).

3 Methodology

This study is conducted at UMCU, during a period of six months (January 2016 – June 2016). UMCU is developing a hospital-wide project named 'UMCU in Beweging' of which the goal is to increase the physical activity of patients in the upcoming five years. The current study was done to assist the start of this project by giving an overview of factors that influence patients' physical activity.

Study design This qualitative study has a cross-sectional study design, and semi-structured interviews were conducted. The interviews are done to gain a rich understanding of the perspectives of both patients and HCPs. Before conducting the actual interview, demographic questions were asked to both patients and HCPs. The interviews had one pre-formulated opening question. For patients, the question was if they could tell what a random day in the hospital looked like for them. For HCPs, the question was if they could tell how they were involved in a patients' day. Aside from that specific question, no other questions were developed a priori.

Although no further questions were formulated a priori, topics were developed that guided the interview. The topics for the interviews with patients were based on the I-Change Model. Topics for the interviews with HCPs were based on the four developed tasks. The research of Brown et al. (2007) and a research report of TNO (Hildebrandt, Bernaards & Hofstetter, 2015) include questions that are based on the I-Change Model. These questions were used to prepare for the semi-structured interviews. The interview guideline can be found in Appendix I.

Study setting The interviews were conducted at two departments of UMCU, namely: geriatrics and MDL (stomach, bowel, liver). These departments were selected because they were willing to participate as a pilot of the hospital-wide project. Since many studies have been done regarding the effects of HAD on elderly, it is important to involve the geriatrics department in this research. The MDL department has patients with a variety in age and will assist in generating data among different age groups. The two departments differ greatly in disease symptoms, which may result in different perspectives regarding physical activity. A description of the departments can be found in Table 1.

Table 1: Description of study departments

Department	Description
Geriatrics	The geriatrics department treats illnesses that are associated with ageing. Common problems among geriatric patients are confusion and delirium, Parkinson, osteoporosis and infections
MDL	The MDL department treats illnesses related to the gastrointestinal tract, liver, gallbladder and pancreas. Infections, dysfunction and tumours are treated

Study sample Patients of both departments were interviewed, as well as multiple HCPs. Three types of HCPs were included: nurses, physiotherapists and doctors. To be eligible for participation, patients and HCPs had to meet the inclusion and exclusion criteria as described in Table 2 and 3.

Table 2: Inclusion and exclusion criteria for patients

Inclusion	**Exclusion**
Being a patient of UMCU in one of the included departments	Being unable to speak clearly, due to cognitive impairments / delirium / confusion
Age ≥ 18 years	Hospitalization less than 2 days
Good understanding of Dutch language (listen- and oral skills)	

Table 3: Inclusion and exclusion for health care professionals

Inclusion	**Exclusion**
Being a HCPs of UMCU in one of the included departments	Working in the hospital for less than 6 months
Good understanding of Dutch language (listen- and oral skills)	

Although the duration of hospitalization varies between departments and patients, it can be stated that an average hospital admission on the geriatrics department lasts about nine days. Hospital admission on the MDL department can vary between one day to several weeks. It is aimed to interview patients who have been hospitalized for at least three days. Interviewing patients in their first days of hospitalizations will

likely bias the results due to their short time being present in the hospital and thus having fewer experiences with being physically active and being motivated by HCPs to be physically active. The first two days can also be very intense for the patient, due to new impressions and the idea of being hospitalized, especially among elderly (Hancock, Chenoweth & Chang, 2003).

It is aimed to have an equal distribution of males and females as well as care-dependent and care-independent patients. Additionally, a fair distribution of nurses, physiotherapists and doctors is desired to ensure a variety of job-related perspectives.

Sampling technique This study is part of the UMCU in Beweging project and therefore the project leader made the first contact with the departments for this research. HCPs, who were informed by the project leader, were later approached by the researcher. These HCPs communicated names of eligible patients and HCPs, leading to snowball and convenient sampling. An agreement was made with the interviewed physiotherapist of the geriatrics department that the researcher would be informed when a potential patient was present. HCPs were approached via e-mail or direct contact. Patients were all approached by the researcher herself, but always after consultation with an HCP about the condition of the patient.

Data collection The majority of the interviews were conducted by one researcher. Two interviews were conducted in collaboration with another master student, who was conducting interviews related to the quality of the delivered care and patients' physical activity, at the geriatrics department, for another research project at UMCU. Since recruitment of patients was very difficult there, both researchers combined strengths to recruit participants and to collect data via a combined interview guide. All data was audio-recorded. Every participant received a code to preserve anonymity. After eight interviews with patients and nine with HCPs, saturation was achieved, with no new information emerging after the last two interviews with patients and the last two with HCPs.

Data analysis Data was analysed with assistance of the software program ATLAS.ti - version 7.5.11. ATLAS.ti is a tool to systematically analyse qualitative data. At first, interviews were transcribed verbatim. ATLAS.ti assisted in open coding as well as axial and selective coding. During data collection, data analysis started since transcribed interviews were already coded. Open coding during data collection resulted in several adjustments of the interview guide. The role of family for instance was only included after several interviews with HCPs. After data collection, developed codes were combined via axial and selective coding, which illustrated overarching themes. One of the overarching themes is *Reasons for the low physical activity of patients.* Codes that are attributed to this theme are *patients' physical state, patients' expectations, knowledge, laziness* and *hospital environment.* During analysis, it became clear that those codes were all related to the lack of physical activity of patients, thus one overarching theme was formed. Data was coded when it was directly applicable to the research question or the used theories, when it was striking and/or frequently mentioned. The analysis of the results was guided and structured by use of the I-Change Model and the formulated tasks for HCPs.

Ethical considerations Written consent was asked to patients and HCPs before the start of the interview. Participants gave consent to audio-record the interview and to use all the recorded data for the analyses of this study. Appendix II and III show the information letter as well as the consent form that was used. These letters were based on approved letters used for other studies at UMCU.

The medical ethics committee of UMCU evaluated the proposal of this research. They confirmed that the Medical Research Involving Human Subjects Act (WMO) was not applicable to this study. Therefore, no official approval of this study was required.

4 Results

This chapter presents the findings of the interviews. The chapter begins with an overview of the participants. Subsequently, the findings will be presented by guidance of the main codes derived from the analysis. These findings will be supported by quotes of the participants. The quotes are translated from Dutch to English. The Dutch version of the quotes can be found in Appendix IV.

4.1 Demographics participants

This study has a total of 17 participants: eight patients and nine health care professionals. Table 4 and 5 present demographics of respectively patients and HCPs. The first column presents the code that is used to identify the participant. The code is based on the department (G= Geriatrics, M = MDL), occupation (P= patient, N = nurse, F= physiotherapist, D = doctor), followed by a number. This code will also be used whenever a quotation is mentioned in the description of the results.

Table 4: Demographics of patients

Patient Participants	Department	Sex	Age	Reason admission	Hospitalization (days/weeks)
GP1	Geriatrics	M	84	Back / hip / leg problems	12 days
GP2	Geriatrics	F	87	Revalidation hip injury	7 days
GP3	Geriatrics	F	85	Fall injury	6 days
GP4	Geriatrics	M	71	Very weak	5 days
MP1	MDL	M	52	Kidney dialysis + consequences of diabetics type 1	5 weeks
MP2	MDL	M	69	Bowel disease, diabetes	3 days
MP3	MDL	M	61	Pancreas problems, excess of liquid and abscesses	4 days
MP4	MDL	M	49	Fever and liver problems	6 days

Table 5: Demographics of health care professionals

HCP Participant	Department	Sex	Age	Occupation	Work experience (months/years)
MF1	MDL	M	39	Physiotherapist	16 years
GF1	Geriatrics	F	24	Physiotherapist	3-4 years
GN1	Geriatrics	F	27	Nurse *(senior nurse)*	5 years
GN2	Geriatrics	M	60	Nurse	20 years
MN1	MDL	F	30	Nurse *(replacing unit head)*	6 years
GD1	Geriatrics	M	34	Doctor	6 months
GD2	Geriatrics	F	31	Doctor *(AIOS[1])*	3 months
MD1	MDL	F	35	Doctor *(AIOS)*	7 months
MN2	MDL	F	29	Nurse	8 years

Patients Four patients of the geriatrics department were interviewed and four of the MDL department. Age varies between 49 and 87 years. Total non-response was three, meaning that patients were approached but not willing to participate. Two patients willing to participate did not meet the inclusion criteria.

More men than women were interviewed, due to the presence of more men on both departments. Although it is not an equal distribution of sex for this study, it is a reflection of the study population. The overall health of the interviewed patients was poor. Three patients were care-independent, meaning that they could walk without assistance - often with assistance of a rollator or walking stick – and could perform ADLs themselves. MDL patients were mostly suffering from fevers and liver or pancreas problems. Problems related to diabetes and lack of insulin injections were also present among these patients. Almost every patient suffered from nausea. Geriatric patients were mostly suffering from fall accidents and

[1] AIOS = doctor in training to become a specialist

contagious bacteria. Age related problems, such as poor vision, incontinence and the inability to perform ADLs were recurrent.

During a period of three weeks, no geriatric patient was found that met the criteria, mostly due to cognitive failure. At time of the interviews, there was a NORO-virus at the geriatrics department, not allowing patients to go out of their room. This inhibited patients to be physically active, especially since many rooms are not suitable to be physically active.

Health care professionals In total, four nurses, two physiotherapists and three doctors were interviewed. Age varies between 24 and 60 years, and work experience at UMCU varies between three months and 20 years. Total non-response was one, in this instance meaning that several appointments were scheduled but eventually did not go through due to lack of time of the HCP. Despite the initial exclusion criteria for HCPs who work less than 6 months at UMC Utrecht, one doctor was included who worked for only three months at UMCU (*GD2*). She was included because she had worked in another hospital before, so she had experience in her work. Two doctors (*GD2, MD1*) were both an AIOS. An AIOS is a certified doctor in training to become a specialist doctor. Since these doctors were still in training, it was expected that they might have a different perspective regarding the topic than HCPs working for several years. Looking at the results, there were no differences in perspectives between the HCPs in training or not, that could be attributed to the total occupation time at UMC Utrecht.

One of the included nurses was currently the replacement of the unit head of the MDL department. Although she was not performing the tasks of a nurse at time of this research, her answers were based on her experiences as a nurse. Another nurse was a senior nurse, which means that aside from the tasks related to being a nurse, she was also responsible for the daily coordination and managing of the nurses of that department.

At the beginning of the interviews, HCPs were asked how they are involved in the daily activities of patients. Their answers provided an explanation of the jobs of nurses, physiotherapists and doctors. To clarify the differences between all three occupations, the provided descriptions are shown in Table 6.

Table 6: Description of health care professionals

Occupation	**Involvement daily activities patients according to interviewed HCPs**
Nurse	Supervise patients for the majority of the day, making sure patients receive what they need
Physiotherapist	Get patients back on track or keep them active. They get asked into consultation by another HCP
Doctor	Responsible for total care of the patient, having a coordinating role in the health care process

4.2 Results interviews

The results will be discussed in the following paragraphs. Every heading represents an overarching theme, derived from the analysis. Most of these themes are composed of different codes. Results of both patients and HCPs will be discussed simultaneously, since HCPs behaviour influences patients' behaviour and vice versa. Some codes are only applicable on patients, some on HCPs and others on both patients and HCPs.

Although the terms used in this paper are 'promoting' physical activity and 'physical activity', HCPs name this differently. Promoting physical activity among patients was often referred to as 'stimulating' patients. The term that was frequently used to indicate physical activity, was 'mobilization'. To correctly describe the results, the terms used by HCPs will also be used in this chapter.

4.2.1 Patients' physical activity

Patients were asked to describe their daily schedule and amount of bed rest. Patients talked about their attitude regarding physical activity during hospital admission, as well as more general feelings regarding their own abilities and the admission.

The majority of patients' time was spent in bed. Some patients go out of bed during visitations of family. Patients' activities, such as watching television, using the iPad or making a phone call, were all performed in bed.

All patients acknowledged that they are not physically active enough during hospital admission, especially not if they compared it to their home situation. There were quite some differences in the activity levels of patients preceding hospital admission. Some patients stated they often went hiking or mountain biking, whereas others said they did not consider themselves as active persons. Although there were differences between activity levels prior to hospital admission, patients' physical activity during admission was similar. Indicating that physical activity during admission is unrelated to a patient's lifestyle before admission.

Even though not every patient was very active - either in daily life or during hospital admission - all patients highlighted the importance of physical activity. Some patients knew the effects of little physical activity during hospitalization. Patients who have been admitted multiple times had felt a deterioration of their muscle strength before. As a result, they took a walk more often than other patients did. In addition of knowing that it is good for their health, taking a walk outside to smoke was also a regular mentioned reason to walk. Patients who had been admitted multiple times also said that they doubt if patients who are new in the hospital, are aware of the consequences of bed rest. This was also indicated by one of the patients who was a former nurse.

Self-efficacy Patients who could walk individually or with assistance of a rollator said they felt comfortable walking and were not afraid of falling. Not every patient had tried to walk without assistance, because they felt more comfortable with help. Sometimes assistance was only needed to get out of bed, not while walking due to the availability of equipment. Physical activity was mostly inhibited by feelings of tiredness, dizziness and nausea. Something that was reoccurring among patients was the need to be autonomous and independent. Several patients stated they wanted to do everything themselves. Not wanting help from others inhibited patients to be physically active.

Stress Being hospitalized can cause a great deal of stress. Most patients had been admitted before, so they knew what to expect. One patient said he did not experience stress at all, because he can adjust fast. Another patient expected to have more stress in a different situation, but due to his alcohol problem, hospital admission was good for him at the moment. Although none of the patients said they experienced stress, several patients mentioned that the only thing on their mind was to get out of the hospital as soon as possible. Some patients said that they do not really care about any changes in the hospital that will promote physical activity, since they just want to get out of the hospital.

> *Actually, it does not bother me at all. I have enough on my mind. I am in the hospital and I just try to get home as soon as possible.* *(GP4)*

Goal or plan Patients applied - or planned to apply - goals that would facilitate their recovery. This was mostly done by patients who needed to feel independent. For some patients the goal was to get home, another wanted to walk 500 – 1000 metres on his own. To achieve this, he aimed to walk three times a day across the department. Goals to walk towards the restaurant or goals with a competition element were also mentioned. One patient aimed to walk down the hall ten times a day, but he admitted that this often stops at three times, because it is always the same route. According to this patient, a stronger goal or competition element needs to be formulated to actually achieve the goal.

4.2.2 Health care professionals' knowledge on patients' physical activity

HCPs were asked if they were aware of the amount of patients' physical activity in general. This was asked to get insight in whether HCPs believe it is important to increase physical activity. It was also asked how they obtain knowledge about the physical activity of patients, to identify how this is communicated via HCPs.

All HCPs acknowledged that patients are not physically active enough. It was said that some patients are naturally more active than others are, but still, the majority of the patients spend most of their days in bed.

HCPs said it was very important that physical activity increases, especially considering the consequences of lying in bed. One of the doctors saw observational data of patients' daily activities on her department and was surprised by the amount that patients lay in their bed.

A nurse mentioned that patients who smoke are often the ones with the most physical activity, since they walk towards the main entrance multiple times a day. Both departments are a five to fifteen minute walk to the main entrance, depending on the patients' physical state. Patients able to walk without assistance of a nurse, walk towards the toilet or walk down the hall of the department (which takes a healthy person around two minutes). The geriatrics department creates an opportunity for patients to be physically active via the exercise group (*beweeggroep)*. Patients can attend this group to do certain exercises while sitting on a chair. Exercises are done on a chair since the patients are often in danger of falling. This group is held around two times a week and some patients attend this group.

Physiotherapists and doctors do not see the patients as often as nurses do. Additionally, physiotherapists only need information about the patients that they treat. Therefore, the nurses and patients need to be asked about the amount of patients' physical activity. Unfortunately, there is no clear system to exchange information on the amount of patients' physical activity. HCPs can note information about the patients' physical activity in the patients' file, to make it more clearly to each other what the patient has been doing.

4.2.3 Reasons for low physical activity of patients

Patients and HCPs were asked for the reasons that cause patients' lack of physical activity. A variety of factors was mentioned, ranging from patient related factors to hospital related factors.

Physical state The most frequently named reason for the lack of physical activity, by patients as well as HCPs, is the poor physical state of patients. Patients on the MDL department often suffer from nausea and high fevers. Geriatric patients are often delirious or suffer from fall-incidents. Sometimes patients can sit in a chair, but the bed is seen as more comfortable. Patients who go walking in spite of their illness say they can only walk a couple of meters and then they need to get back in bed. Several HCPs acknowledged that they understand patients do not want to get out of bed when they are too ill.

Patients' attitude regarding physical activity was not very positive, due to the major influence of their physical state. This was especially at the geriatrics department. The physiotherapist of the geriatrics department said the following:

> *Geriatric patients sometimes say: 'I am 80, physical activity? Not for me, I think it is fine this way.' Well, who are we to force them? (GF1)*

One nurse of the geriatrics department said that around 80% of the patients need assistance while walking. Not only because they cannot walk individually, but also due to the presence of medical devices. All HCPs mentioned that patients able to walk individually spend more time out of their beds than other patients do. According to a doctor, some patients are confined to their beds, because they need to get to the bathroom many times a day. Making it unable for them to walk through the hospital.

Expectations of hospitalization according to HCPs HCPs all addressed that patients have certain expectations of a hospital admission. According to HCPs, patients often expect that a hospital admission entails wearing a pyjama and lying in bed. Some patients enter the hospital in pyjama, even if they only visit the hospital for a medical investigation and have to stay one night for observation.

> *I think that is why patients do not want to be active: 'yeah right, I am in the hospital'. (MN1)*

HCPs state that patients wear a pyjama and lay in bed, regardless of their physical state. This hinders patients' physical activity. One nurse finds it striking that patients find it completely normal to eat in bed in a hospital, since they would never do this at home. Patients who have been admitted to the hospital multiple times said they eat at the table, but that most patients eat in bed.

Knowledge patient All HCPs said that patients know it is beneficial to get out of bed, but they do not think patients know the consequences of long bed rest episodes, such as the development of an HAD. A nurse said that it scares patients when she tells them the consequences. It was stated by another nurse that patients get out of bed because they are bored or cannot sit still, not because they completely understand why it is important.

Laziness Some HCPs mention that laziness is an important reason for the lack of physical activity. Patients lie in their pyjama and enjoy it when coffee and food is brought to their beds. If patients would get out of bed and eat in a chair, physical activity already increases. Another patient said that it becomes harder and harder to get out of bed, once you have laid there for a while:

> *The longer you stay in bed, the less you get agitated to do something. It becomes a bit of a rut. You just fall asleep and wait until another day has passed. (MP1)*

Hospital environment The hospital is very large and according to several HCPs, patients fear that they will get lost, in spite of the signs and a bracelet, which shows to which department patients are admitted. This was not mentioned by any patient. HCPs also think it is too boring to just walk around the hospital. The geriatrics department is a secured department and most patients cannot leave. They can only walk down the hall of the department, which was not seen as very motivating for the patients. Patients also mentioned that they are not looking forward to go walking when they have to walk the same route repeatedly.

The geriatrics department has a living room, which is used for the exercise group. Unfortunately, it is not used much to just sit during the day and, for instance, chat with other patients. Some nurses think this is because patients have their own table and chair in their room, so they do not need another place to sit. Patients in a shared room however, do not use the table and chairs often, since not every patient enjoys the company of other patients. This may discourage patients to sit there and can be a reason for the sometimes low participation in the exercise group:

> *I do not feel like being in someone's class. Pff, go take a walk. If I feel like walking, I will do it myself. (GP4)*

The living room is also used by HCPs for coffee breaks and lunches.

Every patient's bed has an infotainment screen, which allows patients to watch television, to use the internet and to make a phone call. This was mentioned as an inhibiting factor for physical activity, since this screen can only be used when the patient is in - or near - the bed.

Aside from a quite boring walk in the hospital, patients did not mention any other hospital related factors that inhibit physical activity. When patients were directly asked about their opinion of the hospitals' environment, factors unrelated to physical activity were mentioned, such as a tiny bathroom.

Excuses According to several HCPs, patients often use excuses to justify why they stay in their bed. For instance, that it is necessary to stay in bed, just in case the doctor comes by. Patients expect that the doctor will not find them when they are walking down the hall. A physiotherapist said that the departments are very small, so doctors can always find patients. On the contrary, one of the doctors said she prefers it when the patient is in the room, so she does not have to find the patient herself.

One of the interviewed physiotherapists said that she often has patients who tell her that they will go for a walk in the afternoon, but eventually do not do it because they were too busy with medical investigations.

4.2.4 Performance of the four tasks by health care professionals

To understand what HCPs are currently doing regarding the promotion of physical activity, the four developed tasks for HCPs – informing – advising – assisting – collaborating - were discussed in the interviews. Remarks regarding those tasks will be discussed in the following paragraph. A general made remark by HCPs, was that they could stimulate patients more and better, although HCPs of both departments believed they are already doing a good job.

Informing patients

Nurses say they inform patients about physical activity, by saying they should get out of bed. They also tell patients that they should bring normal clothing, instead of only pyjama's, with the underlying idea that patients should not stay in bed all day. However, this is often not directly said to the patient. A nurse of the MDL department said she always tells patients how important it is to be physically active, especially when they suffer from obstipation or when they need to recover from a kidney transplant.

A physiotherapist said that patients are very much steered to the bed by nurses:

> *Then a new patient arrives and they ask: 'would you like to sit on a chair or nice on a bed?' The tone of voice that is used there, sends the patient towards the bed.* (GF1)

According to this physiotherapist, that question is basically the first thing nurses ask the patients. Telling the patient that a bed is nice to sit on or lay in, does not stimulate the patient to be physically active and may increase the amount of bed rest.

Nurses and doctors acknowledge that they could give more information regarding physical activity, especially about the reason why it is important. Physiotherapist claim to already do this. A nurse of the geriatrics department said she noticed that patients are more physically active when she explains them why it is important, although this is not often done. A doctor had the following reason for the lack of provided information by doctors:

> *Well, it is more a general thing that we think of as something that should be done. Whereby I think we assume that nurses take care of that*. (GD1)

HCPs own attitude regarding physical activity might have an influence on their own perceived importance to inform patients about it. Although HCPs all said that they find it important that patients are informed well, not much was said about the attitude of HCPs regarding physical activity. Some HCPs said that they think there are differences in how important HCPs think physical activity is, especially considering priorities. HCPs said they all walk much during the day, especially the nurses and physiotherapists. One of the nurses did say that she thinks many of the HCPs are inactive at home, which could influence perceived importance.

Advising patients

Getting out of bed is the most given advice to patients. If a patient does not feel well enough to get out of bed, advice is given to sit straight up. Eating at the table instead of in bed is also claimed to be advised many times. Another physiotherapist said that she looks for ways that enable the patient to get out of bed individually and advises patients to try that. According to a physiotherapist, most patients can get out of bed, but this is not often done.

Nurses sometimes make agreements with patients; telling the patient to get out of bed and when the nurse comes back after half an hour, the patient may lay in bed again. According to the nurses, this is very helpful to advice and support patients in being physically active. It was questioned by one of the nurses of MDL whether nurses prioritize advising patients how to be physically active at all.

Patients are sometimes advised to get out of bed when they have visitors. HCPs tell the patients that it is much nicer to sit somewhere else during their visits, because they want the patient to be a little active. Patients are also told to get out of bed because the sheets need to be cleaned, while nurses see this as a great opportunity to get patients out of bed, mainly because the patient does not realize the real reason behind it. Some HCPs also mentioned that they do not like to advice the patients to walk down the hall, since they know it is boring.

Assisting patients

Nurses assist patients most during walking; physiotherapists mainly do this during their consultation with a patient. The need for assistance varies greatly among patients. If the patient is able to walk individually, nurses do not assist them in walking and give priority to the patients unable to walk individually.

One nurse said that walking two or three times a day with a (different) patient in a shift of eight hours is already a great amount, although she knows it is not that much in reality. Nurses assist patients the most during weekends, because they are least occupied then. Nurses will walk with a patient whenever they are able to.

> *You do not always have time for it, but I believe that, whenever there is time, people do it. (GN2)*

When it comes to getting patients out of bed, nurses often assist too much. Nurses take the patient out of bed in a time efficient way. Often meaning: without letting the patient try to do it himself. There are various ways to lift people that assist the nurse in transferring the patient and able the patient to do as much on his own. This will increase the physical activity of patients according to one of the nurses.

Collaborating with other HCPs

As stated before, nurses know more about patients' physical activity than physiotherapists and doctors. Since insights on physical activity of patients differ that much, it is important that all three parties collaborate and share information.

A nurse of the geriatrics department mentioned she sometimes makes an appointment with the physiotherapist to mobilize a patient. If there is only one person needed to assist the patient, it saves time when the physiotherapist does this. Another nurse mentioned that she asks the physiotherapist to motivate unwilling patients. According to one of the physiotherapists, HCPs should all provide the same information towards patients, to make expectations more clear for them.

One of the doctors said she sometimes tries to relieve the nurses a bit. She gave an example concerning patients who do not drink enough:

> *So sometimes, I sit next to the bed and think: if I can get one glass of water into that patient, it relieves the nurse. So I was glad I made that effort. But mobilization is not part of it yet. (GD2)*

In general, HCPs mentioned that the current collaboration went quite well, but that they need to work on a single approach in stimulating the patient to be physically active and in discussing patients' physical activity levels.

4.2.5 Perceived responsibilities of health care professionals

HCPs were asked to share their perspectives regarding the responsibility of promoting physical activity among patients. Opinions regarding one's own responsibility were addressed, as well as the responsibility of colleagues. HCPs also addressed the role of volunteers and patients' family.

Responsibility of HCPs

All HCPs had the opinion that the entire medical team is responsible for stimulating patients' physical activity, but that nurses are the key figures in doing so. This is mainly because nurses see patients the most. One nurse said that any intervention is doomed when the entire responsibility would lay with the nurses, since they do not have time to take full responsibility. Although nurses were seen as most responsible, physiotherapists and doctors did acknowledge that nurses already have a busy job with many different tasks.

> *It is really a problem that doctors attribute towards nurses. I wonder if it is not something that should be more attributed towards the doctors. (GD1)*

Physiotherapists were seen as support figures for the nurses, and doctors were seen as the coordinators in the entire process of promoting physical activity. When asked for the reason why, lack of time and lack of competence were named. Assisting patients while walking was not something that belonged to the doctors, according to the interviewed doctors.

> *I think doctors have a coordinating role. But pure practical assisting the patients while walking, that is just not going to happen. (GD1)*

Both female doctors said they feel responsible for talking about physical activity with patients, but not regarding the performance of physical activity. They attributed that to the nurses and the physiotherapist. Just like they felt nurses should check whether the patient actually follows up on the given advice.

> *I tell them they should get out of bed. But not like, walk the stairs or something. I leave that to the physiotherapist. (MD1)*

According to nurses and a physiotherapist, doctors are often seen by patients as higher in order and can be tactically used to stimulate patients to be more active. Physiotherapists as well as nurses claim they sometimes use this to their advantage, by getting the doctor during an argument with a patient.

HCPs acknowledged that physical activity should be increased among patients, but there were doubts on how far a HCP must go in stimulating the patient and when it becomes patients' responsibility. A nurse and a doctor both mentioned that it is very hard to stimulate patients to be physically active when they do not want to. The nurse said the following about patients who really do not get out of bed and need to get motivated quite some times:

> *Then I think: yeah right, I am not a cop. If someone really does not want to get out of bed because he feels to sick or does not want to. Well, at some point it is just the responsibility of the patient. (MN1)*

Role of volunteers

Nurses of the geriatrics department are assisted by volunteers, who are often retired people. According to a physiotherapist, patients do not really use the services of the volunteers to go walking. Instead, they drink a cup of coffee with them. Volunteers can only walk with patients who can walk individually or use a wheelchair. Walking with a patient in danger of falling requires a person with a medical education. Additionally, HCPs expected that volunteers do not always know whether patients can walk individually or not.

One of the doctors said that volunteers could be easily trained to walk with certain patients, especially when the patient can walk individually but has a risk of getting lost due to cognitive impairments. According to other HCPs, volunteers can also lead certain games or activities with the patients.

Role of family

According to the nurses, it is an opportunity to ask family and friends if they can walk with the patient during visitations. Family is sometimes informed about the patients' physical activity; because either the family is interested or nurses believe it is important to inform the family. Sometimes nurses directly ask family members to walk with the patient. According to a nurse, some patients and family members find it normal that visitation is alongside the bed. Patients often go lay in their bed because they expect a visit. It depends on the physical state of the patient whether family can be of assistance, for the same reasons that it is not possible to give volunteers more responsibilities.

Families' role was also mentioned many times regarding patients' clothing. Family members are often asked if they can bring clothes for the patients. Even if the family is asked to bring normal clothes, they often bring sweatpants. HCPs found it their responsibility to inform families well enough about patients' clothing.

4.2.6 Barriers for promoting physical activity according to health care professionals

The main barrier regarding promoting physical activity - mentioned by HCPs - is the lack of time to assist patients, since most patients cannot walk individually. Sometimes there is a lack of staff, especially when assisting a patient requires multiple HCPs. Even if the patient wants to get out of bed, it is not always possible due to lack of time and lack of staff. One of the nurses stated this is a shame, especially since patients who need assistance, are the ones in need of more physical activity.

One of the nurses said that lack of time is sometimes used as an excuse by HCPs. Although he emphasized that nurses are busy, he thought that it should not be the goal to do everything as quickly as possible.

> *It is not about doing as much as possible in as little time. Then we have different problem. There is a goal, to let people do as much on their own as possible.* *(GN2)*

Multiple HCPs said it is also a matter of priorities. Nurses said they give more priority to providing proper medication and information regarding patients' surgeries and treatments, than they do regarding physical activity. Whenever nurses are busy, promoting physical activity is one of the first things they stop doing. Doctors also give more priority to explaining the medical procedure and complications of surgery, than to providing information about physical activity, since patients sometimes forget what they are told during a conversation, due to their age, deliriums or the amount of information. Another doctor also said that information about physical activity should not be given in a conversation where the entire medical procedure is explained, since this would be too overwhelming.

Promoting physical activity can also be done by letting the patients eat at a table instead of in bed. Unfortunately, this is often not possible. Breakfast is served before the morning meeting of the nurses is finished, meaning that patients are already eating before nurses can take them out of bed. Letting patients eat their lunch at a table is also difficult, since nurses need the time to provide patients with medication and to eat themselves.

Lack of knowledge Nurses and doctors stated that they feel they lack knowledge on physical activity, especially regarding specific exercises. Several nurses state that they have no idea what they should say to patients, other than to go out of bed and walk down the hall. One of the nurses said that she expects it to be very complex to know what kind of exercises the patient can do. She wondered if there are standard exercise programs and schemes that patients can use. It was also mentioned that HCPs should be more aware of the consequences of bed rest and lack of physical activity. Nurses claimed to have little knowledge on the reason why physical activity is important; they just know that it is. Only one HCP mentioned the occurrence of HADs.

4.2.7 Patients' perception of the role of health care professionals

Patients were asked if they were getting stimulated to be physically active. Some patients said they were not stimulated at all, while others said they were stimulated by nurses to get out of bed, but not specifically to be physically active. Patients who had physiotherapy said their physiotherapist was tough and made them exhausted in a good way. Doctors were not specifically mentioned by the patients.

None of the patients said they walk often with assistance of a nurse; most of them had never done it. Several patients thought that nurses do not have time to go walk with them. Patients said they expected to be more physically active when a nurse goes walking with them and pulls them out of bed. One of the patients said nurses should stimulate them more to be physically active, but he does not expect that he would get out of bed more because of it. Another patient said nurses told him to inform nurses when he wants to walk, but he never does this because he does not feel like it and because he thinks nurses are too busy. This patient mentioned that nurses should tell him to get out of bed. Although patients state they would like to receive more information and stimulation from the HCPs, they also said they know nurses are very busy and they do not want to burden them.

When discussing the role of the HCPs, patients often mentioned that the communication could be much better. Especially regarding medication and medical investigations. Patients mentioned they are often left in the dark, also because the nurse does not have all the information the patient needs.

4.2.8 Ideas regarding the development of an intervention

Interviews with both patients and HCPs provided many ideas regarding an intervention to increase patients' physical activity. Specific interventions were mentioned, but also suggestions that are more general were made. To structure the following part, three main topics were developed that will guide the perspectives provided by patients and HCPs:

- Things that need to change in the hospital or regarding health care
- Things that need to be taken into account while developing an intervention
- Intervention ideas

Things that need to change in the hospital or regarding health care

This topic was mainly addressed by HCPs. According to HCPs, the mind-set and culture in the hospital needs to change in order for an intervention to be successful. In addition, the daily structure of patients should be altered and knowledge of both patients and HCPs should increase.

Change of mind-set Re-emerging in the interviews with HCPs was that the entire hospital needs a change of mind-set and culture, in order to structurally increase patients' physical activity. The prime change of mind-set according to multiple HCPs would be that physical activity is considered as one of the most important things for patients' recovery, next to medication, so that it will be incorporated in the daily structure.

One of the doctors talked about the language that is used regarding a hospital admission. People say: '*I am lying in the hospital*'. According to the doctor, this is embedded in people's culture and results in an expectation that patients need to lay in bed. The same language issue applies to how the time of hospital admission is named. Literally translated from Dutch to English, this is often called laying-duration (*ligduur)*.

HCPs mentioned they need to change their ideas about the tasks that come with their own job. According to a physiotherapist, a change of mind-set for the doctors would be that the doctor is not merely responsible for measuring blood pressure and temperature, but also for promoting physical activity. One doctor mentioned that she often talks for 5 minutes with a patient, but that she never really thought about the possibility to do this talk while walking. She also thinks it is not really the mind-set of people.

Doctors were wondering why they always visit the patients and not the other way around. Although not every patient would be able to do this, it does increases patients' physical activity. Additionally, doctors have a certain checklist that they follow during a consult. One of the geriatric doctors said it would be an easy change to incorporate questions about physical activity in that checklist. A nurse mentioned patients are always transferred in their bed, for instance for a medical investigation, even if the patient is able to walk. This needs to change in order to increase physical activity.

A change of mind-set for patients as well as the patients' family was also mentioned. HCPs said they should inform patients and their family more and better about the importance of physical activity to alter the expectations. Multiple HCPs state that providing the right information from day one, will influence the expectations patients have of a hospital admission. HCPs and patients also mentioned that the foodservice could make sure patients do not eat in bed, by putting the plates on a table.

HCPs state that the entire health care process should be developed in such a way that it increases patients' physical activity.

Daily program for patients A majority of HCPs mentioned the introduction of daily programs for every patient, to stimulate physical activity. For a majority of patients, this scheme can be (quite) similar. A scheme for a patient, who can walk individually, would contain messages like: eat your breakfast in a chair. Or: from 15.00 – 15.15h: take a walk down the hall. According to HCPs, such a scheme would stimulate and urge patients more to get out of bed and be physically active.

Aside from daily programs for the patient, one nurse talked about a mobility plan for HCPs. This mobility plan should contain information, for instance if the patient is able to walk individually. According to the

nurse, this mobility plan increases HCPs knowledge about the abilities of the patients and makes sure that patients are stimulated to do more on their own.

Increase knowledge Lack of knowledge among patients and HCPs has been mentioned as a reason not to be physically active and a barrier for stimulating patients. Increasing knowledge of both patients and HCPs is likely to increase the priority and thus the actual physical activity. HCPs should get more knowledge regarding specific exercises and regarding the use of equipment that lets the patient do as much as possible. Physical activity was not a subject at nursing school and nurses say they do not get training. One of the nurses said that using certain equipment is also ergonomically better for the nurse herself, but not every nurse is aware of that.

Things that need to be taken into account while developing an intervention

Aside from things that need to change, HCPs mentioned things that need to be taken into account during the development of an intervention. First, the intervention should be tailored as much as possible. Second, the developers need to be aware of the hierarchy within the hospital.

Tailored approach One single intervention is not likely to be successful for every patient, so the intervention should be as tailored as possible. This because the hospital has many patients, with different medical conditions and personal characteristics. Several HCPs say that the intervention should be adaptable for every department. The duration of hospitalization is also important to take into account while developing an intervention, since every department has a different average of days/weeks patients spend there, and it can also differ between patients of the same department. One of the doctors does not think an intervention is effective for short-time hospitalized patients.

Additionally, not every patient can leave their room and be physically active, either due to illness or due to a contagious disease. According to several HCPs, patients need to get the opportunity to be physically active in their room.

Hierarchy The term hierarchy was mentioned in several interviews with HCPs, regarding the involvement of the medical staff in an intervention.

A physiotherapist said doctors need to be stimulated by someone higher-up, in order to be actively involved in the promotion of physical activity. It was mentioned multiple times that unit heads and professors need to support the entire intervention, since they are often the ones in charge and can influence the entire medical staff. According to multiple HCPs, the entire hospital needs to support the project and it should be promoted as something the hospital stands for.

Intervention ideas

Patients as well as HCPs brought up multiple ideas that are expected to increase patients' physical activity. Ideas mentioned more frequently will be discussed in this part. Some ideas focus on making walking more attractive, others on exercise in general. A list of all ideas can be seen in Appendix V.

Trail A trail through the hospital was seen as a fun and suitable opportunity to increase physical activity. Some HCPs mentioned a walking-route through the hospital; others talked about a trail with coloured lines on the floor, indicating how many meters the trail is. Although this was perceived as a good idea, HCPs did mention that the trail should only be at the department, since not every patient can leave the department. According to one of the physiotherapist, a trail with coloured lines would not be possible for geriatric patients, since many of them have poor vision. The trail would confuse them. One of the MDL patients also introduced a trail.

Home trainer When discussing ways to increase patients' physical activity, HCPs often mentioned they would like a home trainer. The MDL department owned one for several years and was regularly used by patients, even at night when patients could not sleep. The home trainer was popular among HCPs, mainly because it is easy in use and departments can share one. HCPs thought patients prefer a home trainer to a '*purposeless*' walk through the hospital.

One of the MDL patients also brought up a home trainer. He said the home trainer should track the distance and speed, or should have 3D-glasses, to make it more enjoyable. He explicitly underlined that he thinks it is very important to make exercise as fun as possible.

eHealth Opinions about the use of apps and infotainment screens, both considered as eHealth, differed between the medical staff of the geriatrics department. One of the physiotherapists said more and more elderly bring an iPad, whereas a nurse stated that 90% of the geriatrics patients have no idea how an iPad or infotainment screen works. Despite their different perspective on the current use, they both stated that in five years, almost every elderly owns an iPad and knows how to work with it.

Although eHealth would not be applicable for every patient, all HCPs were enthusiastic about the use of it in the hospital. Mostly because it does not require many extra effort from nurses. One of the nurses said it helps if a device tells the patient to be physically active, rather than a nurse.

A buzzer that tells patients to get out of bed, and videos with exercises for patients were named several times, by patients as well as HCPs. One of the physiotherapists already provided a name for these videos:

> *Something like Holland in Motion, but than for UMCU. (GF1)*

Exercise- or activity group The geriatric department has an exercise group for patients for about ten months now. It differs greatly how many patients attend. Some HCPs promoted a daily exercise group.

Although HCPs are enthusiastic about an exercise group, some do believe patients are too tired to attend. One of the nurses thinks 1-on-1 exercise lessons, or some equipment, would be more effective. One large room in the hospital full of sports equipment that can be used by all patients was also considered. The nurse who brought this up, said that physiotherapist in training can keep an eye on the patients there. Patients of the MDL department mentioned they would like an exercise group, with for instance yoga or aerobics lessons.

Something that is more suitable for sick patients, is an activity group. There used to be one for the entire hospital, but due to financial aspects, this group was cancelled. Baking and crafting, but also reading the newspaper, were done together with the activity supervisor. Several HCPs mentioned that it would be helpful if such an activity group would return. It would increase the physical activity of patients, if only by being out of bed. It would also increase the social contacts of the patient and it will assist the nurses. A physiotherapist said it is important that there will be something to do for everyone:

> *But it has to be tailored to everyone's level (…) That one can knit and the other can do a Photoshop course. (MF1)*

Living room / meeting room Some HCPs gave the impression that the living room of the geriatrics department is used often, whereas others said it is used too little. HCPs mentioned that a living room is important on every department, since it can be used as a stimulant for patients to get out their beds and it increases the available space for physical activity. One of the physiotherapists said that a geriatric patient with pneumonia sits in the living room, although a long patient at another department lies in bed with a pyjama on. He says it is a difference in opportunities for the patient that causes this distinction.

A meeting room for all patients was also mentioned, since not every department has space for a living room. The majority of the patients indicated to like a meeting room because of the long days and since it would increase the social contacts. This meeting room was mentioned for other patients, since the interviewed patients liked their privacy and did not need such a room.

UMCU in Beweging

Interviewed HCPs were all aware of the existence of UMCU in Beweging and mentioned they find it a great project that can set an example for other hospitals. One of the physiotherapist also said that, although it is about health care improvements, UMCU needs to distinguish itself from other hospitals. Several nurses believed a project like UMCU in Beweging will result in a better structure regarding the providence of

information towards patients about physical activity. Although all HCPs were positive about an intervention like UMCU in Beweging, some questioned if it would apply to lazy patients who need more of a character change. A short hospital stay was not expected to change that.

4.2.9 Summary of the results

The most important results acquired via interviews are shown in Table 7. Every theme presented in the result chapter is summarized in this table.

Table 7: Summary of the most important results

Theme	Description
Physical activity (PA) patients	- PA is very low - It is unrelated to patients' lifestyle prior to admission
HCPs knowledge on patients PA	- HCPs are aware of the lack of patients' PA - Nurses know most about patients PA, physiotherapists and doctors need to explicitly ask it
Reasons low PA	- Poor physical state - Patients expect they need to stay in bed - Patients lack knowledge on the importance of PA for recovery - Non-motivating hospital environment
Tasks HCPs	- HCPs do not structurally provide direct information regarding PA - Nurses only advice patients to go walking, other exercises are not given - HCPs only walk with patients when they have time left - HCPs should collaborate more to make sure patients are physically active
Responsibilities HCPs	- Nurses are seen as most responsible to stimulate patients' PA - Physiotherapists are seen as assistants for nurses - Doctors are seen as responsible for informing the patient - Volunteers and families can be stimulated more to assist
Barriers promoting PA	- Lack of time - Lack of knowledge
Patients perception role of HCP	- HCPs should provide more information - HCPs should stimulate patients more to get out of bed - HCPs should create more opportunities to assist patients while walking
Things necessary prior to intervention	- Knowledge of both patients and HCPs must be increased - Mind-set of both patients and HCPs should change - Hospital language (lying in bed) should change - Patients should get a daily schedule
Things to take into account during development of intervention	- Tailored approach for patients and departments is necessary - The whole hospital needs to support the intervention
Intervention ideas	- See Appendix V

5 Discussion

In this chapter, the results are discussed in light of the literature and the theoretical framework. The strengths and limitations of this research are outlined after the discussion of the results. Implications of the findings and recommendations for future research as well as practical implications will also be discussed.

5.1 Main findings

The goal of this study was to identify factors that influence patients' physical activity. This is important since lack of physical activity during hospitalization often causes an HAD. This study extends the scope of previous studies of Brown et al. (2007), So and Pierluissi (2012) and Lafrenière et al. (2015), since in contrast to the named studies, this study incorporated the perspectives of both patients and three types of HCPs.

The sub-questions, and thus the main research question, will be answered by discussing the results. First, four major findings will be discussed to give an overview of the most important factors that influence patients' physical activity. Subsequently, other findings important in answering the research questions will be presented, followed by a brief discussion of the theoretical framework of this study. The following sub-questions will be answered:

1) *In what way do motivation-, intention- and behavioural factors of the I-Change Model influence patients' perspectives and behaviour regarding physical activity during hospitalization?*
2) *How do health care professionals perceive their role and accompanying tasks in promoting the physical activity of patients and what hampers the performance of that role?*

Major findings

The first major finding Lack of physical activity among patients is mostly caused by a poor physical state. Patients consider themselves too ill to be physically active, despite the patients' intentions. Contrary to the I-Change Model and previous research of Giles-Corti and Donovan (2002), patients' lifestyle does not seem to be of great influence on the amount of physical activity during hospital admission. Patients with an active lifestyle prior to admission also spend the majority of the day in bed, as result of their poor physical state. This major influence of physical state on physical activity was also supported by findings of So and Pierluissi (2012) and Brown et al. (2007). Most of the interviewed patients had a positive attitude regarding physical activity in daily life, but this does not mean patients have the same attitude regarding physical activity during admission. Ewart et al. (1986) indicated that patients' physical activity is low since they are likely to overestimate the intensity of physical activity. Bed rest episodes can make the patient feel more ill, but the fact that a patient is staying in the hospital might also make a patient feel more ill. Afraid that physical activity is too intense for their physical condition, patients stay in bed, which increases the chance of getting an HAD. Patients' physical state can thus be seen as a better precursor for physical activity, than attitude and lifestyle. This can be dangerous, since patients with a poor physical state are more at risk of getting an HAD, especially when they continue to stay in bed. Additionally, patients' physical state is a non-modifiable factor, which will be challenging to incorporate in an intervention to increase patients' physical activity.

A second major finding Patients' expectations of a hospital admission influence physical activity as well. HCPs indicated that patients expect to lay in bed all day, which is expressed in their choice of clothing: a pyjama. Although the expectations of patients to lay in bed during an admission were seen as a major issue in this research, no other studies have been found that support this particular finding. This might be because, to the extent of the researchers' knowledge, no similar study has been done before. The expectation to be in bed during an admission is closely related to the language that is used to indicate one is in the hospital: '*I am lying in the hospital*'. This language is embedded in peoples' culture and needs to change to alter patients' expectations. It is almost as if lying in bed during an admission is a social norm that needs to be met. If none of the patient is getting out of bed, it can be that that is perceived as the norm. Patients' expectations are enforced by HCPs themselves, since they tell patients how comfortable the bed is. It is also enforced by the website of UMC Utrecht, which advises patients to bring their bathrobe and

pyjama's for an admission, while saying nothing about normal clothing. Interviewed patients who had been admitted before, seemed to have more experience regarding the down-side of bed rest and were more aware of the importance of physical activity than patients new to the hospital. Patients' expectations are altered due to experience of an HAD before (Lafrenière et al., 2015). This is also supported by So and Pierluissi (2012), who found that patients who have been admitted to the hospital before, expect to be physically active in the hospital, while patients who never have been in the hospital do not share that expectation.

The third major finding Lack of knowledge among patients regarding the importance of physical activity for recovery restraints physical activity. Many patients lack knowledge on the effects of bed rest and lack of physical activity for recovery, which was also found by Buttery and Martin (2009). The lack of knowledge among many patients affects the motivation factors and thus may be a substantial barrier towards physical activity. Being aware of the risk of getting an HAD due to lack of physical activity likely leads to more physical activity. The lack of knowledge among patients is possibly influenced by the little provided information. Both patients and HCPs expressed that too little information about physical activity is given to patients. Closely related to the knowledge of patients, risk perception seems higher among patients who have been admitted to a hospital before. Due to their own experiences, these patients seem to be more aware of the risks than others are. Additionally, the fact that patients learn the downside of bed rest out of experience rather than information provided by HCPs, tells that HCPs should be more involved in the promotion of physical activity. Provided information and knowledge should serve as a cue to action to be physically active, not one's own experience with functional decline. Increasing the knowledge of patients might lead to increased physical activity according to the I-Change Model. Previous research showed that patient expect to receive information about diet from HCPs (Vogt et al., 1998). It requires more than transmission of information to actually increase patients' physical activity. Patients' health literacy should be improved, allowing patients to not only understand why physical activity is important, but also to have the opportunities and abilities to be more physically active. Patients indicated that they would like to be more informed regarding, and assisted during, physical activity. Similar to previous research and in line with the I-Change Model, patients expect to be more physically active when they get stimulated more to do so (So & Pierluissi, 2012).

The fourth and last major finding is the lack of knowledge among HCPs. They mostly lack knowledge regarding the exact reasons that physical activity is important for recovery, also supported by Kneafsey, Clifford and Greenfield (2013). When HCPs provide information about physical activity, they often do it indirectly by saying they should not only wear a pyjama. As Douglas et al. (2006) also stated that the clarity of the message towards patients about the importance of physical activity should be improved. HCPs said they feel responsible for performing the four tasks, but lack of knowledge was seen as a barrier regarding that performance. Mainly because HCPs do not understand why and how these tasks need to be performed. This helps explaining the third major finding, since the little provided information by HCPs creates a lack of knowledge among patients. Increasing HCPs knowledge about the importance of physical activity for recovery, is not only likely to improve the performance of the tasks, it is also likely to increase the perceived priorities of HCPs to promote physical activity. This is important since assisting patients is also not done enough. According to Kalisch (2006), assisting patients in walking is one of the seven nursing-care tasks most neglected. This might be related to the low priority of physical activity among HCPs as found in this study and others (Lafrenière et al., 2015; Douglas et al., 2006). This low priority is likely caused by the lack of knowledge and the fact that medication is still seen as the major and sometimes only cure for patients. Stimulating physical activity is not yet seen as '*real*' medical care (Lafrenière et al., 2015; Kalisch, 2006).

Additional findings

Although few patients took walks throughout the hospital, most patients mentioned that the hospital could be made more attractive to increase physical activity. The environment was perceived as boring and there was no place to go according to both patients and HCPs. HCPs found it difficult to stimulate patients to take a walk, while they know the hospital is not attractive to walk through.

Social support is often seen as one of the main facilitators for physical activity (AlQuaiz and Tayel, 2009; Kahn et al., 2002; Thorpe, Kumar & Johnston, 2013). This is in contrasts with the current study. Many patients said they do not like the idea of being physically active with strangers or to be in a room full of strangers. While at the meantime, those same patients suggested a meeting room or exercise room for patients to be more active. This questions if a meeting room is in fact a good idea to promote and increase physical activity. Kahn et al. (2002) found that social support is present in walking groups or so called buddy systems. It might be that such groups would serve as a cue to action for patients, since people want to fulfil the norm made by others and learn from each other (Bandura, 1986). HCPs and family were seen as social support by patients, but not directly in relation to physical activity.

Lack of time to promote physical activity was also mentioned as a barrier by HCPs, which is supported by research of Lafrenière et al. (2015), Kneafsey, Clifford and Greenfield (2013), Douglas et al. (2006) and Hébert, Caughy and Shuval (2002). Lack of time results in nurses who perform their medical tasks in a time efficient way, which does not involve looking at the abilities of the patients (Lafrenière et al., 2015). Promoting physical activity also entails that patients do as much on their own as possible, which cannot be done due to the time efficiency of nurses. The frequent referral to the lack of time by HCP indicates that HCPs often think walking with a patient is the main role in promoting physical activity, underestimating the effect of providing the right information. Patients said they expect to be more physically active when they get stimulated more by HCPs. However, patients are very restrained in asking for support. The busy schedules of nurses thus also affect patients, resulting in patients who fear to bother nurses and few patients who actually ask nurses to take a walk with them, and thus in less physical activity (Brown et al., 2007; Lafrenière et al., 2015). Lack of time of HCPs can be seen as a barrier to physical activity, as illustrated in the I-Change Model. Lack of available staff was also seen as a barrier regarding physical activity promotion (Lafrenière et al., 2015; Kneafsey et al., 2013; Doherty-King & Bowers, 2011; Kalisch 2006). Making HCPs more aware of the importance of physical activity and thus the effects of an HAD is important. This is a vicious cycle, especially considering that HADs make patients more dependent on HCPs, leading to even more patients that need HCPs help, to an increased lack of time and a likely increase in lengths of stay (Brown et al., 2004).

Additionally, the need to be independent and feel autonomous was perceived quite high among patients. According to Lafrenière et al. (2015), patients could feel humiliated when they need to ask others for help, because of their need for autonomy. This is likely to result in even more bed rest. The Self Determination Theory indicates that autonomy and the feeling of being in control could lead towards more motivation to perform physical activity (Deci & Ryan, 2000). This might explain why patients who want to be independent and to recover fast, develop goals to achieve this.

Theoretical Framework

I-Change The I-Change model provided a clear structure for this study, especially regarding the development of the interview questions. Due to the I-Change Model, important factors related to patients' physical activity could be identified. Although the model is a helpful guidance in the explanation of behaviour, it does not cover all aspects important in patients' physical activity. This cannot be seen as a flaw of the model, since the I-Change Model is not specifically developed to predict or explain patient related behaviour. The comprehensiveness of the model provided this study with many potential factors of influence on patients' physical activity. This created a broad view for the researcher during data collection, resulting in the understanding that the factors involved in physical activity differ per patient. A patient-behaviour model could be a better predictor or provide a better explanation than a broad behavioural model as the I-Change Model.

HCPs tasks Regarding the development of the four tasks for HCPs, it was right to assume that several tasks are more applicable to one type of HCP than to another. No other tasks were formulated by HCPs than the pre-developed tasks. Even though the four tasks are not validated, they seem to be accurate. Probably since they are in line with the 5 A's construct, which is more commonly used in the medical field (Whitlock et al., 2002). Although four separate tasks were developed for this study, HCPs often talked about '*stimulating patients'*, taking all four tasks together. It is important to make a distinction between tasks,

since this makes it more clear for HCPs what promoting physical activity entails and to share responsibility. While developing the four tasks, physical activity was seen as walking, sitting and so on. During the interviews, it became clear that increasing physical activity already starts by letting the patient get out of bed on his own, or by letting the patient do as much as possible in general. This should be incorporated in the explanation of the tasks, to make sure HCPs have a better understanding of what the tasks entail.

Based on the discussed findings of this paragraph (5.1), a visualization is made that shows the main factors of influence on patients' physical activity (Figure 2). This visualization has similarities with the framework of Brown et al. (2007) regarding the influence of illness severity, the hospital environment, and HCPs and patients' expectations. Brown et al. (2007) found that treatment-related factors were also of influence, which was not a result of this study. Although the predisposing- and motivational factors of the I-Change Model are of influence on patients' physical activity, they are not considered as the main factors involved in this study, and thus not included in Figure 2.

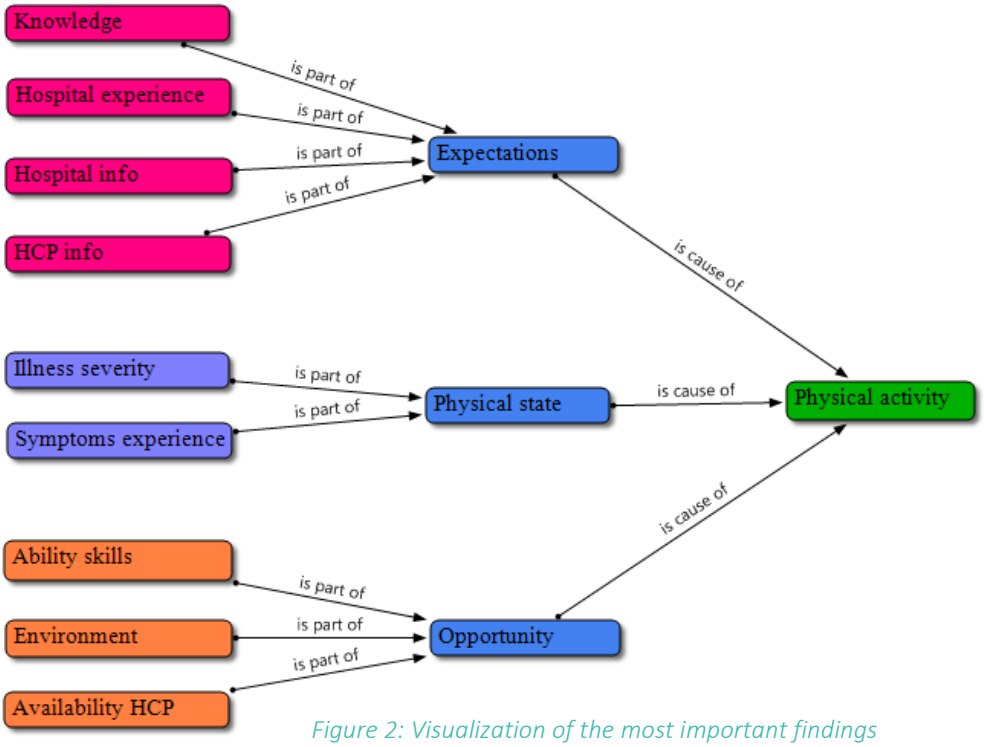

Figure 2: Visualization of the most important findings

Figure 2 shows that there are many different factors involved in patients' physical activity. Although these factors are seen as most of influence on patients' physical activity based on this study, it does not mean that every patient experiences the influence of these factors. Some may be more of influence than others may, some are not experienced at all, or additional factors may be involved. Therefore, any intervention requires a tailored approach (Noar, Benac & Haaris, 2007).

5.2 Strengths, Limitations and Recommendations

Strengths and Limitations

One of the strengths of this study is that it included patients as well as different types of HCPs. This provided an in depth overview of the perspectives of the persons most involved in patients' physical activity. Thus also in the perspectives of the people most involved in increasing patients' physical activity. Face-to-face interviews facilitated the collection of detailed information. Additionally, not having pre-formulated questions created the opportunity to have an open conversation, allowing the participant to share his or her perspectives. This may have provided information, which may not have been provided in a structured interview.

The different inclusion and exclusion criteria were chosen appropriately, especially regarding the required duration of hospitalization. One patient admitted for four days had difficulties answering questions related to physical activity during hospitalization. A shorter stay might have influenced the results. Additionally, it can be questioned if the intervention itself should focus on short-stay patients, since physical activity during (a short) hospitalization is not likely to be of great influence on physical activity before and after hospitalization (Hoekstra et al., 2015).

It was aimed to have a broader variety in age, but not a single patient was found younger than 45 and suitable for the interviews. It could be that younger patients (>18, <45) have other ideas about physical activity and an intervention, than older patients.

Inclusion of more departments instead of only two, may have given greater variety in perspectives. Although it should be stated that answers of patients were seen as more dependent on personal characteristics than on the department where the patient was admitted, since no differences in reasons for the low physical activity were found that can be entirely attributed to the difference in departments.

Conducting interviews in a hospital entailed multiple challenges, such as the occurrence of contagious diseases, unavailable patients due to doctors' appointments, or provided care by nurses. Hospital admission was often short, making the group of potential participants very small. Conducting interviews on the geriatrics department entailed several extra challenges, such as difficulties with communicating, hearing loss, and the prevalence of delirium; making interviews impossible (Hancock, Chenoweth & Chang, 2003). Patients who had little contact during the day likely saw the interview as an opportunity to have social interaction (Hancock et al., 2003). This often led to various stories about one's personal life and family. It was sometimes challenging to steer the patient towards answering the interview questions rather than informing the researcher about unrelated matters. The high prevalence of delirium on the geriatrics department questions whether the geriatric participants can be seen as a reflection of all geriatric patients, since only the interviewed patients had a good cognitive state during the period of data collection. Meaning that only these patients were able to think reasonably about physical activity. The remaining question is how the patients with a poor cognitive state think about physical activity and how these patients can be included in the intervention program.

During data collection, the geriatrics department suffered from the NORO-virus, not allowing patients to go out of their room. These patients could not be physically active at times of the interviews, making it more difficult to talk about physical activity during admission and possible intervention ideas. Additionally, one patient had to give retrospective answers, since the NORO-virus showed up two days before the planned interview. Absence of the NORO-virus would likely have given more accurate answers of geriatrics patients regarding their own physical activity and their perception of the promotion of physical activity by HCPs.

The majority of this study was executed by one researcher, which may have created a researcher bias (Boeije, 2009). Participation was voluntary and thus inevitably subject to self-selection bias. All information obtained from the interviews was self-reported and bias due to social desirable answers may have occurred (Boeije, 2009).

Recommendations for future research

Future research should include family and volunteers since it became clear during the interviews that they play a substantial role in patients' physical activity as well. Employees of the foodservice should also be included, since they are responsible for providing the patients with food, often in bed. Including these three parties may result in the identification of more factors that influence patients' physical activity. Although many intervention ideas were given, it is not known which aspects actually lead towards more physical activity. A study in an experimental setting could give more insights in which alterations actually increase patients' physical activity. Since the UMCU in Beweging project will be implemented throughout the entire hospital, it is also of interest to know more about the perspectives of younger patients. Additionally, more insights regarding the promotion of physical activity among very sick patients is necessary. Mainly because physical state is of such major influence on patients' physical activity.

Recommendations for UMCU

Taken the four major findings together, they can all be seen as a barrier towards physical activity, but they can be altered to be a facilitator. This can be done by introducing a daily time-schedule for patients, which improves the provided structure for both patients and HCPs. Such a time-schedule obtains time-intervals for bed rest and physical activity and is useful for several reasons. First, patients understand that physical activity is part of their hospital stay. Increasing patients' knowledge and awareness alters their expectations and can increase the physical activity. Second, HPCs will understand that physical activity is a necessary part of an admission. The daily time-schedule will give HCPs more knowledge on how they can assist patients, likely leading to increase HCPs priority regarding the promotion of physical activity. Third, having a structure for patients eases the tasks of the HCPs a little, since they do not have to remind patients constantly about physical activity as much as they need to now.

The intervention should be as tailored as possible since patients' physical activity is very dependent on patients' physical state, abilities and needs. The provided intervention ideas in this research are presented towards the program leaders and can serve as a basis of the intervention. There are already many ideas at UMCU to make physical activity more attractive, for instance by using nudges throughout the hospital. Although this is necessary, it is important to keep in mind that the first step lies with improving the knowledge of patients and HCPs to increase the priority regarding physical activity. Once the priority increases, patients will likely be more interested in using certain facilities and HCPs will perform the four tasks better.

Important in the development of an intervention, is to think about its goal. Is the goal to provide patients with more opportunities to be physically active, likely leading to an increase in physical activity? Is the goal to include all patients, also the ones who do not want to be physically active and need a lot of motivation and assistance? Alternatively, is the goal to increase patients' physical activity during hospitalization but also afterwards? Every goal had a different target group and needs a different approach. Especially since physical activity during (a short) hospitalization is not likely to be of great influence on physical activity before and after hospitalization.

To make sure every patient and visitor knows physical activity is part of hospitalization, the project should be promoted well throughout the hospital. Implementations that increase the attractiveness of physical activity are needed, but they will not be used if patients and HCPs do not understand why and how these should be used. Many factors are involved in patients' physical activity and altering these can be hard, especially regarding patients' physical state. Patients' physical state is the greatest barrier regarding physical activity and at the same the hardest one to modify. Evaluation of the project with patients and HCPs is advised to improve the project and make sure it will be as effective as possible.

6 Conclusion

This study has provided insights into factors of influence on patients' physical activity. Patients and HCPs are aware of the lack of physical activity and the long bed rest episodes, but this awareness does not yet lead to more physical activity. Patients' physical activity is low because their physical state is of great influence on their ability to be physically active. Physical activity is not yet seen as part of a hospital admission, since hospitalization entails the expectation of lying in bed, increasing the chance of getting an HAD. Patients lack knowledge regarding the consequences of lack of physical activity, partly due to lack of provided information by HCPs. HCPs feel responsible for promoting physical activity, but lack knowledge and time, making it difficult to perform the four tasks. When HCPs have the ability and opportunity to perform the four developed tasks, they can be of great influence on increasing patients' physical activity. This will likely result in less HAD and thus less patients' dependency on HCPs during - and after - hospitalization.

This qualitative study has increased the knowledge about the perspectives of patients and HCPs regarding patients' physical activity. Factors of influence on patients' physical activity are identified and indicate what is necessary to increase patients' physical activity during hospitalization. Concrete ideas for the intervention are already developed based on this study. This study can thus be evaluated as a great first step in increasing patients' physical activity and thus in improving patients' health.

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Appendix I: Interview guideline

Interview patients

Demographics	
Sex	
Age	
Length	
Weight	
Hospital department	
Reason for hospital admission	
First date of hospital admission	
Care-dependent before hospital admission?	
Currently care-dependent?	
Needs material? assistance during walking?	

Participant number:	**Check**
Informed consent	
Interview starten met openingsvraag: *Kunt u vertellen wat u op een willekeurige dag tijdens uw opname doet?*	
Thema's • Perceptie eigen activiteit voor en tijdens opname ○ *Verwachting / actief persoon / vereniging*	
• Attitude richting fysiek bewegen ○ *Ervaring / belangrijk*	
• Beweging in relatie met herstel ○ *Voordelen / nadelen / prettig – eng / intentie*	

• Zelf-effectiviteit
  ○ *Vertrouwen / Belemmerende – faciliterende factoren*
  ○ *Mogelijkheden om zelf wat te veranderen*
  ○ *Hoe omgaan met opname? – bewegingsdoel?*
  ○ *Stress tijdens opname*	

• Advies / informatie / ondersteuning zorgpersoneel ○ *Behoefte – ontvangen / prettig / rol personeel*	
• Interventie mogelijkheden ○ *Huidige mogelijkheden / makkelijker/ leuker /assistentie app / groep patiënten*	

Interview health care professionals

Demographics	
Sex	
Age	
Hospital department	
Occupation	
Time of employment	

Participant number:	**Check**
Informed consent laten invullen	
Interview starten met openingsvraag: *Kunt u vertellen in hoeverre u betrokken bent bij de dagbesteding van een patiënt?*	
Thema's • Fysieke beweging patiënten ○ *Voldoende / reden weinig bewegen*	
• Attitude richting fysiek bewegen en herstel	

• Informeren
  ○ *Kennis patiënt / vertellen belangrijk*
• Adviseren
  ○ *tips / oefeningen*
• Assisteren
  ○ *Ronde lopen*
• Samenwerken
  ○ *Andere zorgverleners*	

• Verantwoordelijk
  ○ *Wie?*
  ○ *Familie*
• Belemmerende en bevorderende factoren	

• Eisen interventie
  ○ *Wat is nodig?*
  ○ *Hoe personeel motiveren?*
  ○ *Tijdgebrek tackelen*	

• Interventie mogelijkheden ○ *Assistentie / eHealth / groep patiënten / lijnen op grond/ spelletjes*	

Appendix II: Informed consent patients

Informatiebrief onderzoek:
Interview over fysieke activiteit tijdens ziekenhuisopname

Geachte heer/mevrouw,

Wij vragen u vriendelijk om mee te doen aan een wetenschappelijk onderzoek. U beslist zelf of u wilt meedoen. Voordat u de beslissing neemt, is het belangrijk om meer te weten over het onderzoek. Lees deze informatiebrief rustig door. Hebt u na het lezen van de informatie nog vragen? Dan kunt u terecht bij de onderzoeker. Op bladzijde 3 vindt u haar contactgegevens.

1. Wat is het doel van het onderzoek?

Met dit onderzoek willen we weten hoe patiënten denken over fysieke beweging tijdens ziekenhuisopname en welke factoren dit bevorderen en belemmeren. Het doel van het onderzoek is om in kaart te brengen wat patiënten willen en nodig hebben, zodat zij tijdens ziekenhuisopname minder tijd in bed besteden.

2. Wat is het onderwerp van het onderzoek?

Door de opname in het ziekenhuis kan uw conditie verminderen. Ook is bekend dat patiënten in het ziekenhuis weinig bewegen. Wij willen graag in kaart brengen hoe patiënten hier tegenaan kijken.

3. Hoe wordt het onderzoek uitgevoerd?

Om de ideeën van patiënten in kaart te brengen, worden er interviews met patiënten afgenomen. Het interview heeft de vorm van een gesprek waarbij de patiënt zijn of haar ideeën en ervaringen deelt. Er zal één interview plaatsvinden met een duur van gemiddeld 30 minuten.

Het interview vindt plaats tijdens uw opname in het ziekenhuis en heeft verder geen invloed op de geplande zorg.

4. Wat wordt er van u verwacht?

Tijdens het interview wordt u een aantal vragen gesteld die geheel betrekking hebben op uw eigen mening en ervaring. Het is van belang dat u zich prettig voelt tijdens het interview. Mocht u op bepaalde vragen geen antwoord willen geven, kunt u dit altijd aangeven.

5. Wat zijn mogelijke voor- en nadelen van deelname aan dit onderzoek?

U heeft de mogelijkheid om uw ervaring wat betreft fysieke beweging tijdens uw opname te delen en hierbij zowel positieve punten als verbeterpunten te noemen. Het nadeel is dat u eenmalig zo'n 30 minuten tijd kwijt bent aan een interview.

6. Wat gebeurt er als u niet wenst deel te nemen aan dit onderzoek?

U beslist zelf of u meedoet aan het onderzoek. Deelname is vrijwillig. Als u besluit niet mee te doen, hoeft u verder niets te doen.

Als u wel meedoet, kunt u zich altijd bedenken en toch stoppen. Ook tijdens het onderzoek.

7. Wat gebeurt er met uw gegevens?

Het interview wordt met een audio-recorder opgenomen. Deze opname wordt door de onderzoeker gebruikt tijdens het analyseren van de data. Het onderzoek is anoniem, uw naam zal dan ook niet genoemd worden op de opname. Gegevens die de onderzoeker tijdens het onderzoek over u verzamelt, blijven geheim. De onderzoeker slaat uw gegevens op onder een code. Alleen de onderzoeker weet welke code u heeft. Alleen de onderzoeker en de onderzoeksbegeleiders kunnen de opnames beluisteren.

U geeft alleen toestemming voor gebruik van uw gegevens voor dit onderzoek. Na het onderzoek worden de gegevens nog 7 jaar bewaard. Dit onderzoek is een samenwerking tussen UMC Utrecht en Wageningen University en daarom zal de data op beide plekken worden bewaard. Na deze 7 jaar worden alle gegevens vernietigd.

8. Welke medisch-ethische toetsingscommissie heeft dit onderzoek goedgekeurd?

De Medische Ethische Toetsingscommissie (METC) van het UMC Utrecht heeft voor dit onderzoek een verklaring “niet WMO-plichtig onderzoek” afgegeven. Dit betekent dat het onderzoek door de onderzoeker is aangemeld bij deze METC en niet valt onder de wet medisch-wetenschappelijk onderzoek met mensen.

9. Wilt u verder nog iets weten?

Als u vragen heeft over de gang van zaken rond het onderzoek dan kunt u dit melden aan de onderzoeker of aan uw behandelend arts.

Het onderzoeksteam is bereikbaar via tel 088-755 8831

10. Hoe te handelen bij klachten?

Als u klachten heeft kunt u dit melden aan de onderzoeker of aan uw behandelend arts. Mocht u ontevreden zijn over de gang van zaken bij het onderzoek en een klacht willen indienen dan kunt u contact opnemen met Patiëntenservice. Dit is bereikbaar via tel. 088-755 88 50.

11. Ondertekening Informatiebrief

Indien u besluit deel te nemen aan dit wetenschappelijk onderzoek, dan vragen we u om samen met de onderzoeker het toestemmingsformulier te ondertekenen en te dateren.

Vriendelijke groeten,

Kirsten de Klein
Stagiair afdeling Revalidatie, Verplegingswetenschap en Sport

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Toestemmingsformulier

Interview over fysieke activiteit tijdens ziekenhuisopname

Februari 2016

- Ik heb de informatiebrief voor de interviewparticipant gelezen. Ik kon aanvullende vragen stellen. Mijn vragen zijn genoeg beantwoord. Ik had genoeg tijd om te beslissen of ik meedoe.

- Ik weet dat meedoen helemaal vrijwillig is. Ik weet dat ik op ieder moment kan beslissen om toch niet mee te doen. Daarvoor hoef ik geen reden te geven.

- Ik weet dat sommige mensen mijn gegevens kunnen zien. Die mensen staan vermeld in de informatiebrief.

- Ik geef toestemming om mijn gegevens te gebruiken, voor de doelen die in de informatiebrief staan.

- *Ik weet dat mijn onderzoeksgegevens na het onderzoek nog 7 jaar bewaard worden bij UMC Utrecht en op Wageningen University, en daarna worden vernietigd.*

- Ik vind het goed om aan dit onderzoek mee te doen.

Naam proefpersoon: _____

Datum: _____ Handtekening:

Ik verklaar hierbij dat ik deze participant volledig heb geïnformeerd over het genoemde onderzoek.

Naam onderzoeker (of diens vertegenwoordiger): _____

Datum: _____ Handtekening:

Appendix III: Informed consent health care professionals

Informatiebrief onderzoek:
Interview over fysieke activiteit tijdens ziekenhuisopname

Geachte heer/mevrouw,

Wij vragen u vriendelijk om mee te doen aan een wetenschappelijk onderzoek. U beslist zelf of u wilt meedoen. Voordat u de beslissing neemt, is het belangrijk om meer te weten over het onderzoek. Lees deze informatiebrief rustig door. Hebt u na het lezen van de informatie nog vragen? Dan kunt u terecht bij de onderzoeker. Op bladzijde 3 vindt u haar contactgegevens.

1. Wat is het doel van het onderzoek?

Met dit onderzoek willen we weten hoe zorgverleners denken over fysieke beweging onder patiënten en hoe dit gestimuleerd kan worden. Het doel van het onderzoek is om in kaart te brengen hoe zorgverleners hun rol vormgeven omtrent het motiveren en assisteren van patiënten betreffende fysieke beweging tijdens ziekenhuisopname.

2. Wat is het onderwerp van het onderzoek?

Door ziekenhuisopname kan de conditie van patiënten achteruit gaan. Ook is bekend dat patiënten in het ziekenhuis weinig bewegen. Om de conditionele achteruitgang te voorkomen, is het van belang dat patiënten meer bewegen. Wij willen graag weten wat er volgens zorgverleners van belang is om patiënten meer te laten bewegen en hoe dit in het werk van de zorgverleners past.

3. Hoe wordt het onderzoek uitgevoerd?

Om de ideeën van zorgverleners in kaart te brengen, worden er interviews afgenomen. Het interview heeft de vorm van een gesprek waarbij de zorgverlener zijn of haar ideeën en ervaringen deelt. Er zal één interview plaatsvinden met een duur van gemiddeld 30 minuten.

Het interview vindt plaats in het ziekenhuis.

4. Wat wordt er van u verwacht?

Tijdens het interview wordt u een aantal vragen gesteld die geheel betrekking hebben op uw eigen mening en ervaring. Het is van belang dat u zich prettig voelt tijdens het interview. Mocht u op bepaalde vragen geen antwoord willen geven, kunt u dit altijd aangeven.

5. Wat zijn mogelijke voor- en nadelen van deelname aan dit onderzoek?

U heeft de mogelijkheid om uw mening en ervaring wat betreft fysieke beweging van patiënten te delen en hierbij zowel positieve punten als verbeterpunten te noemen. Het nadeel is dat u eenmalig zo'n 30 minuten tijd kwijt bent aan een interview.

6. Wat gebeurt er als u niet wenst deel te nemen aan dit onderzoek?

U beslist zelf of u meedoet aan het onderzoek. Deelname is vrijwillig. Als u besluit niet mee te doen, hoeft u verder niets te doen.

Als u wel meedoet, kunt u zich altijd bedenken en toch stoppen. Ook tijdens het onderzoek.

7. Wat gebeurt er met uw gegevens?

Het interview wordt met een audio-recorder opgenomen. Deze opname wordt door de onderzoeker gebruikt tijdens het analyseren van de data. Het onderzoek is anoniem, uw naam zal dan ook niet genoemd worden op de opname. Gegevens die de onderzoeker tijdens het onderzoek over u verzamelt, blijven geheim. De onderzoeker slaat uw gegevens op onder een code. Alleen de onderzoeker weet welke code u heeft. Alleen de onderzoeker en de onderzoeksbegeleiders kunnen de opnames beluisteren.

U geeft alleen toestemming voor gebruik van uw gegevens voor dit onderzoek. Na het onderzoek worden de gegevens nog 7 jaar bewaard. Dit onderzoek is een samenwerking tussen UMC Utrecht en Wageningen University en daarom zal de data op beide plekken worden bewaard. Na deze 7 jaar worden alle gegevens vernietigd.

8. Welke medisch-ethische toetsingscommissie heeft dit onderzoek goedgekeurd?

De Medische Ethische Toetsingscommissie (METC) van het UMC Utrecht heeft voor dit onderzoek een verklaring “niet WMO-plichtig onderzoek” afgegeven. Dit betekent dat het onderzoek door de onderzoeker is aangemeld bij deze METC en niet valt onder de wet medisch-wetenschappelijk onderzoek met mensen.

9. Wilt u verder nog iets weten?

Als u vragen heeft over de gang van zaken rond het onderzoek dan kunt u dit melden aan de onderzoeker of aan uw leidinggevende.

Het onderzoeksteam is bereikbaar via tel 088-755 8831

10. Hoe te handelen bij klachten?

Als u klachten heeft kunt u dit melden aan de onderzoeker of aan uw leidinggevende. Mocht u ontevreden zijn over de gang van zaken bij het onderzoek en een klacht willen indienen dan kunt u contact opnemen met Karin Valkenet: 088-755 8831

11. Ondertekening Informatiebrief

Indien u besluit deel te nemen aan dit wetenschappelijk onderzoek, dan vragen we u om samen met de onderzoeker het toestemmingsformulier te ondertekenen en te dateren.

Vriendelijke groeten,

Kirsten de Klein
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Appendix IV: Quotation list in Dutch

[1] Eigenlijk interesseert het me allemaal niet. Ik ben al druk genoeg met mezelf. Ik lig in het ziekenhuis en ik probeer zo snel mogelijk naar huis te kunnen. (GP4)

[2] Binnen de geriatrie zijn ook patiënten die zeggen kom op man, ik ben 80, bewegen.. het hoeft van mij niet meer. Ik vind het wel mooi geweest. Wie zijn wij dan om dat te verplichten? (GF1)

[3] Ik denk dat patiënten daarom misschien niet willen bewegen: 'Ja hoor, ik lig in het ziekenhuis' (MN1)

[4] Hoe langer je blijft liggen hoe minder je geprikkeld bent om iets te gaan doen. Het wordt een beetje sleur. Dan val je gewoon even lekker in slaap en is er weer een dag voorbij. (MP1)

[5] Ik heb geen zin om iemand zijn klasje te lopen, pff zoek het lekker uit. Als ik zin heb om te lopen, loop ik zelf wel. (GP4)

[6] Dan komt er een nieuwe patiënt en wordt er gevraagd: wilt u op een stoel zitten of lekker op bed? De intonatie waarmee dat wordt gezegd, wordt al heel erg naar het bed gestuurd. (GF1)

[7] Nou, dat is meer iets wat we zo over het algemeen vinden, dat dat moet. Waarbij we denk ik een beetje standaard er van uit gegaan dat de verpleging dat wel regelt. (GD1)

[8] Maar je hebt niet altijd tijd ervoor, maar ik geloof wel dat wanneer er tijd is, dat mensen dat wel doen. (GN2)

[9] Dus dan zit ik wel eens bij het bed en denk ik: als ik er nu een half glas in heb, dan scheelt dat weer de verpleegkundigen. Dus ik was al blij dat ik die inhaalslag had gemaakt (gelach). Maar het bewegen was er nog niet bij. (GD2)

[10] Maar het is wel echt een probleem dat meer bij de verpleging neer gelegd wordt door de dokters. En ik vraag me af of dat niet meer ook bij de dokters zou moeten liggen. (GD1)

[11] Ik vind dat je daar als arts wel een coördinerende rol in hebt. Maar het puur praktisch met de patiënt zelf een ommetje wandelen, dat gaan we gewoon niet doen. (GD1)

[12] Ik zeg meer gewoon dat ze wel uit bed moeten. Maar niet van, ga de trap op en neer ofzo. Dat laat ik dan aan de fysiotherapie over. (MD1)

[13] Dan denk ik: ja hallo ik ben hier geen politieagent. Als iemand echt niet uit bed wil omdat die zich te ziek voelt of geen zin heeft.. En op een gegeven moment is het ook eigen verantwoordelijkheid van de patiënt hoor. (MN1)

[14] Het gaat niet over binnen zoveel tijd zoveel mogelijk gedaan hebben. Dan hebben we een ander probleem. Er is een bepaald doel, om mensen zelf zoveel mogelijk te laten doen (GN2)

[15] Een soort Nederland In Beweging, maar dan voor het UMC. (GF1)

[16] Maar het moet wel aansluiten op ieders niveau (…) Dat de een kan breien en de ander een photoshopcursus kan doen. (MF1)

Appendix V: List of intervention ideas

In Table 8, a list of provided intervention ideas of both patients and HCPs can be found.

Table 8: Provided intervention ideas

Intervention ideas	Elaboration
Activity group	- Crafting / baking / reading newspaper / puzzles
Apps	- App to bring patients in contact with each other, so that they can walk together
Exercise group	- Per department or for the entire hospital - Under supervision of physiotherapists in training
Exercise schedule	- Exercise scheme for patients
Home trainer	- Including an odometer or speedometer as feedback - Virtual cycling: climbing the Alps
Infotainment	- Buzzer who tells patient to get out of bed or in case patient watches too much television - Button with information about physical activity - Exercise videos, in and outside bed - Block Wi-Fi for an hour: exercise hour
Meeting room / living room	- A place for patients to walk to and to meet others - Social support of other patients - Can be used to serve coffee - Table tennis, shuffle board, chess - Cinema / music room
Patient rooms	- Remove beds and substitute them by chairs. Then make a separate sleeping room
Pedometer	- With feedback on pedometer / app / infotainment
Trail	- Lines or footsteps on the floor of the department, indicating how many meters the trail is - Museum tour: old hospital equipment, information
Walls	- Making walking more attractive by putting posters on the wall or art