IMPROVING COLLABORATION IN THE WORK-DIRECTED CARE FOR KNEE-REPLACEMENT PATIENTS

APPENDICES

AUGUST 2017
ANNA SPAENIJ
MASTER THESIS APPENDICES

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APPENDIX A: OVERVIEW OF 'WET VERBETERING POORTWACHTER'

Wanneer?		Wat?	Door wie?
1	Week 1	Ziekmelding bij arbodienst	 werkgever
6	Binnen 6 weken	Probleemanalyse	 bedrijfsarts
8	Binnen 8 weken	Plan van aanpak (PVA)	 werkgever & werknemer
6	Iedere 6 weken	Evaluatie en bijstelling PVA	 werkgever & werknemer
42	Week 42	Ziekmelding bij UWV	 werkgever
52	Week 52	Eerstejaarsevaluatie	 werkgever & werknemer
91	Week 91	Aanvraag WIA	 werknemer
104	Week 104	Ontslag, WIA uitkering of doorgaan met re-integratie bij werkgever	 werkgever & werknemer

APPENDIX B: RESEARCH INTRODUCTION

Subject: Interview verbetering samenwerking met de bedrijfsarts binnen de orthopedie

Beste ... ,

[Ik neem contact met u op, omdat ik van Paul Kuijer uw email adres heb gekregen. Tijdens de PIM scholing had u deze opgegeven bij zijn oproep voor mensen die zouden willen benaderd in het geval van een project rondom werkgerichte revalidatie zorg na een TKP].

Mijn naam is Anna Spaenij en ik ben een studente Design for Interaction aan de TU Delft. Momenteel ben ik bezig met mijn afstuderen binnen het AMC op het onderwerp verbetering van de samenwerking tussen bedrijfsarts en orthopedie bij de begeleiding van werkende TKP patiënten. Ik zou graag een afspraak willen maken voor een interview over de huidige gang van zaken en mogelijke oplossingen. Dit gesprek zou ongeveer 15 minuten duren.

Zou u hier tijd voor hebben?
Zo ja, wanneer zou het voor u uitkomen als ik hiervoor bij u langskom?

Alvast heel erg bedankt en ik hoop snel van u te horen.
Groeten,
Anna Spaenij
Stagaire Coronel Instituut AMC & Afstudeerstudente Design for Interaction TU Delft
Tel: 0641163922

APPENDIX C: INVITATION LETTER

Geachte mevrouw/meneer,

Om te zorgen dat zo veel mogelijk patiënten na een knieprotheseoperatie weer aan het werk kunnen is goede communicatie tijdens de aanloop naar de operatie en nazorg zeer belangrijk. Hierbij spelen zowel de bedrijfsarts als de orthopedisch chirurg een centrale rol.

We vragen u om mee te werken aan dit interview. Het doel van dit interview is te achterhalen wat de kansen in de huidige zorg zijn om de bedrijfsarts te ondersteunen in de begeleiding van werkende patiënten, voor en na hun knieprotheseoperatie, in samenwerking met de orthopedisch chirurg. Hierbij zal er gevraagd worden naar uw ervaringen met de huidige manier van werken bij deze patiënten, welke elementen van belang zijn om deze zorg optimaal te laten verlopen en de huidige samenwerking. De vragen die zullen worden gesteld zijn te vinden in het bijgevoegde bestand 'Interview vragen'.

De onderzoeksgegevens kunnen alleen worden ingezien door de onderzoekers. De gegevens die tijdens dit onderzoek worden verzamelend, worden anoniem verwerkt. Uw persoonlijke gegevens worden nooit gebruikt in documentatie, rapporten of publicaties.
Er zijn voor u geen risico's verbonden aan deelname aan het interview.
Als u besluit deel te nemen aan het interview, wordt u gevraagd het bijgevoegde toestemmingsformulier te ondertekenen.

Dit interview wordt uitgevoerd binnen de context van het Coronel Instituut voor Arbeid en Gezondheid in een onderzoekslijn met dr. Paul Kuijer en prof. dr. Monique Frings-Dresen. Als u na het interview nog vragen hebt kunt u contact opnemen met Anna Spaenij (uitvoerend onderzoeker), telefoon: 0641163922 of mail: a.l.spaenij@amc.nl.

Alvast hartelijk dank voor uw medewerking!

APPENDIX D: INFORMED CONSENT FORM

TOESTEMMINGSFORMULIER

voor deelname aan het onderzoek beter op werkgerichte zorg voor patiënten met een knieprothese

Ik verklaar hierbij op een voor mij duidelijke wijze, mondeling en schriftelijk, te zijn ingelicht over de aard, het doel, de risico's en de belasting van het onderzoek. Mijn vragen zijn naar tevredenheid beantwoord. De schriftelijke informatie behorend bij deze verklaring is mij overhandigd. Ik had genoeg tijd om te beslissen of ik aan het onderzoek mee wilde doen.

Ik heb te allen tijde, de vrijheid om op deze beslissing terug te komen, zonder opgave van reden.

Ik weet dat de gegevens uit dit interview anoniem en vertrouwelijk worden behandeld en alleen door de betrokken onderzoekers worden ingezien.

Ik geef wel / geen (omcirkel uw keuze a.u.b.) toestemming om het interview op te nemen met een microfoon.

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

Ik wil wel / geen (omcirkel uw keuze a.u.b.) inzicht in de resultaten van dit onderzoek.

Hierbij verleen ik vrijwillig toestemming voor deelname aan het onderzoek naar verbetering op werkgerichte zorg voor patiënten met een knieprothese.

Naam deelnemer: ..... Geboortedatum:...../...../.....
Geslacht: M / V

Handtekening : ..... datum:...../...../2017

In te vullen door onderzoeker:

Ik heb mondelinge en schriftelijke toelichting verstrekt op het onderzoek. Ik verklaar mij bereid nog opkomende vragen over het onderzoek naar vermogen te beantwoorden. Als er tijdens het onderzoek informatie bekend wordt die de toestemming van de persoon zou kunnen beïnvloeden, dan breng ik hem/haar daarvan tijdig op de hoogte.

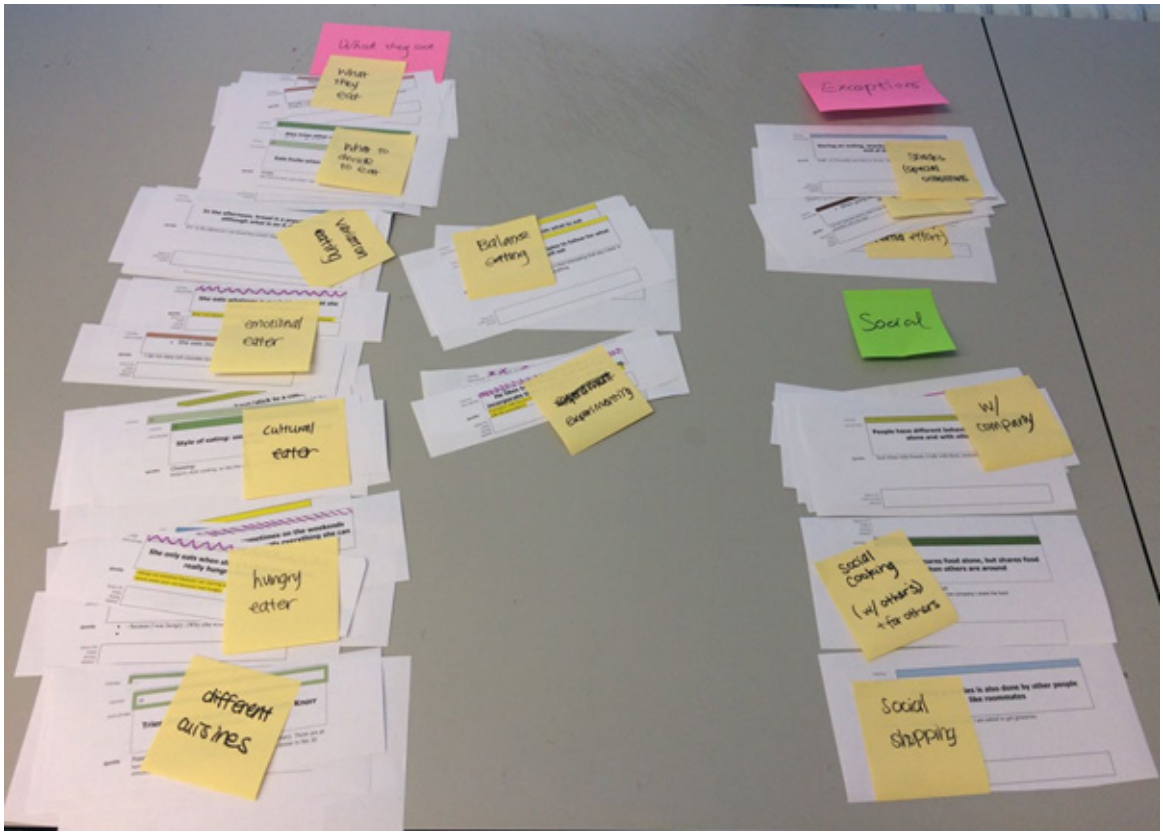
Naam onderzoeker (of diens vertegenwoordiger):
.....

Handtekening : ..... datum:...../...../2017

APPENDIX E: STATEMENT CARDS

Grouping	
Paraphrase	
Quote	
Space for notes during grouping session	

EXAMPLE OF STATEMENT CARDS IN CLUSTERING:



APPENDIX F: PILOT RESULTS STUDY 1

The pilot for this research has been done with one occupational physician and one orthopaedic surgeon. The goals of the pilot were; to check the timing of the interview, try out how to incorporate a journey map and stakeholder map in the interview as object stimuli and finally to identify the phases and parties to be incorporated in the journey map.

TIMING

The expected duration of the interviews was 15 minutes. However, during the pilots, the interviews appeared to take up to 20 minutes. This new duration has been communicated to the participants for the real interviews. In order to make sure the interviews stay within this time limit, the interviewer steered the interviewee to focus on the questions and subjects discussed.

INCORPORATING THE OBJECT STIMULI

During the interviews, two object stimuli were planned to be incorporated. However, during the pilots it was found that explaining and using two different object stimuli was too much for the participants to focus on and takes up too much time. The patient journey map is most relevant to integrate in the interview question by asking the participants to describe their way of working and who they cooperate with based on the journey map.

JOURNEY MAP PHASES

During the pilots, the phases and stakeholders for the process of the orthopaedic surgeon and occupational physician were filled into the journey map to form templates for the object stimuli used in the real interviews, see the figures below.

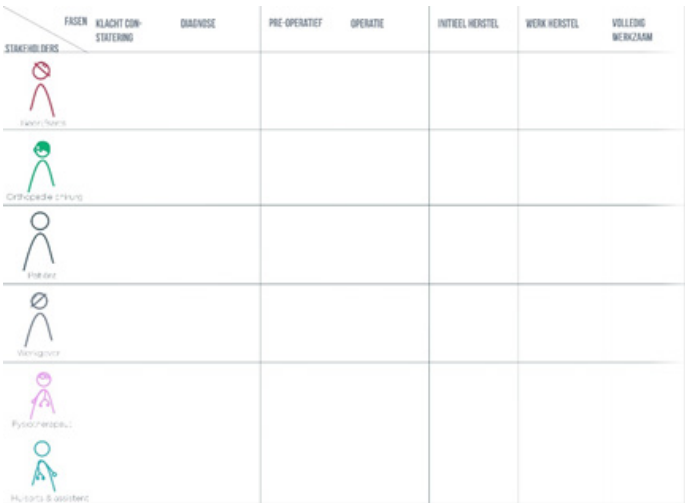


Figure 1: Journey map occupational physician

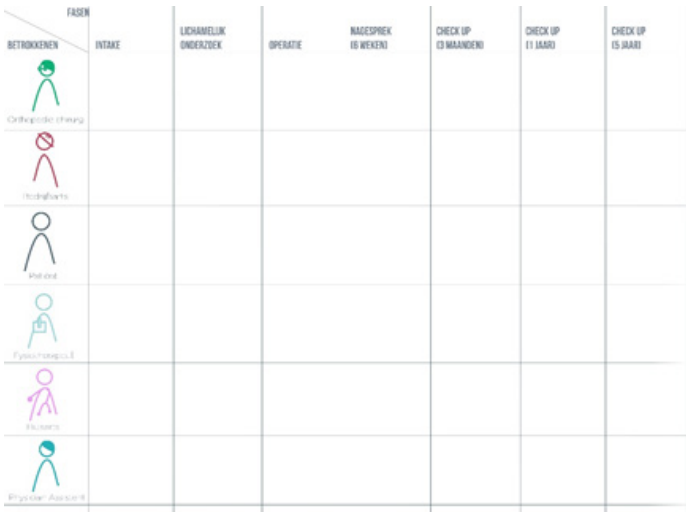


Figure 2: Journey map orthopaedic surgeon

APPENDIX G: RESULTS OF CLUSTERING

Table 1 Focus of OP and OS

Cluster	Occupational Physician	Orthopaedic Surgeon
focus of the orthopaedic surgeon	after the surgery, the os focusses on the recovery of the prosthesis instead of the patient	after the surgery, the os focusses on the recovery of the prosthesis and function
	The work recovery is not and should not be the focus of the os	The OS wants to focus on his own expertise of medical technical recovery
	The patient's experience is central to the OS's treatment	The patient's experience is central to the OS's treatment
		The OS wants to play a role in guiding his patient's back to work
focus of the Occupational Physician	The OP is not a caregiver	Some OP work mostly administrative, others as physicians
	The OP wants to solely focus on work and the consequences of the patient's treatment for their work	The OP only focusses on the consequences of the patient's treatment for their work
	The OP checks and influences the process and the physicians involved	The OP can in some cases police the other physicians
	The OP can adjust his guidance based on the patient's character and needs	
	The OP wants physicians to spend more time on patients' non-physical characteristics	
	A patient's function should be more important than the recovery of the prosthesis	
	Analysing the patient apart from work provides the OP with more information about the patient's abilities	
		some OPs do not focus on the patient but on the employer, making the contact very different between OPs and patients

Table 2 Timing of visits between patient and OS and OP

Timing of meetings with patients		Before surgery the OS only sees a patient for 10 minutes
	The OP meets the client when they are already in contact with the OS	
	The OP meets the client when they have met with the OS to have the newest information	
	When a client receives conservative treatments for a longer period of time, the OP sees them before being unable to work	
	The OP meets the client when they can no longer work due to their knee troubles	
	Most clients come to the OP when on the waiting list for surgery	
		At the orthopaedics department, the OS and patient only see each other during and just after the surgery
	The OP sees his clients only after surgery	
	The OP sees clients after the first phase of recovery, when they become more mobile	
	The first visit post-surgery with the client and the OP is between 6 and 8 weeks after surgery	The first visit post-surgery with the client and the OS is between 4 and 8 weeks after surgery
	The OP sees the client every 6 weeks to suit the "Wet verbetering poortwachter"	The OS sees the patient 3 times after surgery, at 6 weeks, 3 months and a year
	When and how often the client meets the OP after surgery depends on the client's recovery and the client's desire for contact	When and how often the client meets the OS depends on the client's recovery and the client's desire for contact
		The OS sees a client again when they experience problems in rehabilitation
	When the employer decides on the timing and frequency of th contact between OS and OP, this is very irregular	Clients go to the OS when being pushed by their employers
	When a patient does not have replacing work and cannot return to his own work, the OP does not need to meet with them	
	The OP wants to see his client in person to make changes to the recovery process	
	With more direct contact between OP and client, the contact is easier	
	When a client is not mobile yet, contact over the phone is sufficient	

Table 3 First meeting

cluster	occupational physician	orthopaedic surgeon
first meeting with patient	During the first meeting the OP makes an analysis of the problem: the nature of a client's work, his abilities and restrictions	During the first patient contact, the OS performs tests, talks through the results and discusses treatment options with the patient
		in the first contact moment, the os redirects the patient to a physiotherapist
		during the first meeting, the os asks the reason why the patient came to see him
	the first meeting focusses on managing expectations	
		The OS meets some patients just to get to know each other before surgery
	During the first meeting the OP makes a plan for the rehabilitation together with the patient	
		working patients are seen longer before surgery

Table 4 Information before surgery

cluster	occupational physician	orthopaedic surgeon
information before surgery		Proper information is especially important for clients with physically demanding work
		The OS tells the client to also pass his information to the employer and OP
		The OS makes use of standard routes to inform the client properly of their treatment
	The information of the OS focusses on pain and function after the surgery	The information of the OS focusses on pain and function after the surgery and the effects on daily activities
		The os wants a more active role in informing the client and OP
	Most clients are already properly informed by other physicians, if not the OP tells the general process	in the first meeting after surgery, the os discusses work advice with the patient

Table 5 Base of advice

Theme	Occupational therapists	Osteopathic Surgeons
Grounds of advice given by the OS and OP	The OP bases claims on his medical training	The OS bases most advice on experience
	Most OS are unwilling to provide ergonomical advice	Real knowledge about what is allowed and possible with a TKA does not exist sufficiently for the OS to base advice on
	The information provided by other physicians is always the base for any claims made	Often the OS receives information about his patient before seeing them in person
	When starting guidance before surgery the OP has to estimate the client's abilities afterwards	
	The OP estimates the client's abilities based on functioning outside of work	

Table 6 First meeting after surgery

Theme	Occupational therapists	Osteopathic Surgeons
First meeting with patient post-operative	The first meeting post-operative is about the patient's recovery in function and alleviation	In the first post-operative check the OS checks according to the standard lists on the problems and the patient's function
	During the first meeting post-operative the OP performs a small physical examination	
	The first meeting post-operative is about the patient's experience of the operation and rehabilitation	
		Next to the standard questions, the OS often receives sports related questions
		Post-operative good communication is the most important thing to the OS
	The first meeting post-operative is about work integration	Some return earlier than in the standard procedure because they have to work again, the OS checks whether they are able
	In the beginning mobility is being able to reach the workplace is the most important factor for the OP to discuss with the patient	In the first meeting the OS provides the patient with a walking aid

Table 7 Smaller roles in the process of the occupational physician and orthopaedic surgeon

cluster	occupational physician	orthopaedic surgeon
Cooperation with others	PA is very important in establishing the first communication between the OP and client	
	The OP is not interested in contact with the SP as this does not provide new information	
	The OP redirects clients to the GP when they come by on their own initiative	
	The OP and GP discuss pre-operative	
	After the SP leaves the treatment to the guidance of the GP, except for when trouble occurs	The SP needs to be given a sense of security and advice on the patient's abilities
	A work consultant supports the OP by establishing a load or function profile is which adaptations for the work environment or the search for new work can be based	
	The first guidance provider in Sittard is the reintegration counsellor, the SP sees the client only weeks later	
	The reintegration counsellor decides on the details the reintegration plan of the OP together with the client	
	Thanks to the cooperation of the OP, reintegration counsellor and the prevention counsellor the client can be guided through the whole process from prevention to rehabilitation	
	The reintegration counsellor advises employers legally and to help them guide their employees	
	The reintegration counsellor makes sure that the non-medical facets of the patient receive sufficient attention	
		Insurance doctors receive a copy of the letter which the os sends to the GP
		The os is in regular contact with a sports physician

		after the surgery, the OP is the first caregiver who the patient sees, to take out the stitches
		after surgery, the section nurses assist the physiotherapist in the patient's functional recovery
		a lot of the OS's patients are operated upon by an assistant
		The patient is mostly in contact with the department secretaries outside of his treatment
		When admitted, the patient's main point of contact is the hospital doctor
		The OS works with assistant, co-assistant, other OS, anesthesiologists and the department secretaries at the registration desk
		after the surgery the OS does not see the patient again, as he lacks time for providing high-quality after care.
		checks after surgery are done by a specially trained nurse physician, who works mostly independently

Table 8 Collaboration between OP and employer

Cluster	Occupational Physician	Orthopaedic Surgeon
The collaboration between OP and employer	The employer looks for new work based on the advice of the OP	
	The OP discusses work with both employer and physiotherapist	
	The OP wants to start discussing with the employer pro-actively	
	The OP cannot even mention the attempt to the employer due to secrecy	
	Most employers and clients discuss work among themselves and the OP can facilitate	
	The OP provides the employer with function assessment of the clients restrictions and possibilities in work over time	
	Employers should not want the client to return to work too fast	
	Some employers leave the search for replacing work completely to the OP	
	How big the role is that the OP plays in the communication to the employer depends on the relationship between client and employer	
	When there are no options at the current employer for replacing work, the OP and employer search together elsewhere	
	In smaller companies losing an employee is a very big blow, the OP helps guide there through their lawful obligations	
Looking for other work at the same employer	The OP starts to look for replacement work before the operation, due to the long waiting list	
	When they are sick, the clients are scheduled for other work	
	When no suitable work is possible with the employer, the client stays at home	

	Sometime the DP can help the client to keep working with their current employer by making workplace adjustments, or looking at a different position to more suitable	
	Where the employer cannot offer suitable work, the DP has to look for work with other employers	
Replacing work with other employers	To find work with other employers for their employees, the employers need to be in touch with each other and know each other's companies	
	Employers want someone they can keep for longer, so older employees are less wanted	
	Employers do not want employees with limitations	
	The DP only looks for work with other employers to show the users that she has tried	

Table 9 The physiotherapist

cluster	occupational physician	orthopaedic surgeon
Contact with physiotherapist	The physiotherapist is often able to provide more insight in the current state of the patient's recovery, in terms of strength and range of movement	The physiotherapist is often able to provide more insight in the current state of the patient's recovery
	The OP would like to contact the physiotherapist before surgery already	Before the surgery a physiotherapist from the known network is contacted
		During rehabilitation, the patient sees the same physiotherapist as before surgery
	The OP can provide the physiotherapist with tips for areas to focus on during their treatment	often the physiotherapist asks the os to take an extra look at the function and placement of the prosthesis, before the patient can train more intensely
	The OP wants to contact the physiotherapist after the phase of base recovery	
	The OP contacts the physiotherapist when he thinks something might be going wrong	When the os doubts the functional recovery, he writes an email to the patient to give tot the physiotherapist
	Because the physiotherapist sees a patient more regularly, he can provide more patient specific information on their personal attitude and possible limiting factors for recovery	
	Often clients already discuss their work in general terms, but the OP provides with more detailed information on load and activities	
Physiotherapy during work	In the beginning of the rehabilitation, physiotherapy takes first priority and work needs to be planned to allow for enough time to be spent on it.	
No interest in contact with physiotherapist	Not all OP' take the information provided by the physiotherapist serious as he is not regarded as a doctor	
	Most information provided by the physiotherapist is incomplete or unclear, which makes it less useful to the OP	
	Often direct contact with the physiotherapist is not needed, as the OP receives a report on paper and the patient provides all information needed	

Table 10 Rehabilitation duration

cluster	occupational physician	orthopedic surgeon
Duration of recovery	The first weeks the patient should do nothing	The first weeks the patient should do nothing but recover
		During the first phase of recovery the exercises of the physiotherapist take a lot of effort
	speed of recovery depends completely on the patient	speed of recovery depends completely on the patient
	The patient can start working 3 months to half a year after surgery	The patient can start working 4 months to a year after surgery
		The OS tells patients that the first 4 months are purely for recovery, no matter how hard they train
	Patients can start working from 4-6 weeks after surgery	Patients can start working from 8 weeks after surgery
	A patient has completely recovered when he has completely returned to work	
	Finding replacement work with UWV can take almost 2 years	
Factors in rehabilitation	Recovery is done in steps towards more demanding activities during longer periods of time	
	Recovery is done in time, activities and speed	
		Pain and function decide whether a client can do more or less during rehabilitation
	Whether the prosthesis is completely recovered decides when a client can start working	Whether the prosthesis is completely recovered decides when a client can start doing more during rehabilitation
	When a patient is not yet mobile enough they should try to work from home	

Table 11 The influence of work on the patient's treatment

Cluster	Occupational Physician	Orthopaedic Surgeon
Making decisions for treatment options		The OS prefers to wait until a patient is retired before he places a prosthesis
		With older patients, more factors come into play than with younger patients
		When a patient does not want conservative treatment, this is often because of a lack of trust in the treatments, due to stories of friends and family or dislike of medicines
		The OS prefers trying conservative treatment first
		Usually the OS only starts thinking about a prosthesis when conservative treatment is no longer an option
		Before choosing a prosthesis, the OS and patient see each other a few times to discuss options
		When the prosthesis is placed, is up to the patient. They need to be ready both physically and mentally
		The prosthesis is placed when the patient experiences so much pain and is hindered by it in daily activities
The influence of work on treatment decisions		The nature of a patient's work, or whether he works at all, does not change the treatment by the OS
		The OS does not change his treatment depending on the patient's work, but does change the way he informs the patient
		Working patients are often given half prostheses instead of whole ones
		The first 6 weeks of recovery should be the same for working and non-working patients
		When a patient's work is dependent on the functioning of the knee, the OS uses conservative treatments as long as possible
		Working patients discuss the timing of their treatment with the employers
	When a client has less physically demanding work, he can wait longer before receiving a prosthesis	When people cannot work anymore because of their ailments they are given a prosthesis

Table 12 Factors that decide rehabilitation speed and success

Cluster	Occupational Physician	Orthopaedic Surgeon
Patient values		The patient values the abilities of the physician over his character and the contact between them
		Patients often do not see the OP as objective as he works for the employer
Limiting factors for recovery	Recovery can be limited due to the patient's personal attitude	Recovery can be limited due to the patient's character
		Recovery can be limited due to the patient having multiple issues
	Recovery can be limited due to insufficient insurance	
	Recovery can be limited due to the patient not feeling comfortable at work	Recovery can be limited due to the patient being less happy at work
	Recovery can be limited due to insufficient support from the workplace	Recovery can be limited due to the employer pushing the client over his limits
	Recovery can be limited due to work being too demanding	Recovery can be limited due to work being too demanding
	Recovery can be limited due to the quality of the surgery	
	Recovery can be limited due to the patient's physical state before surgery	
	Recovery can be limited due to the patient feeling unheard	
	Recovery can be limited due to employers being unable to offer shorter working days	
	Recovery can be limited due to a patient's fear of movement	Recovery can be limited due to a patient's fear of training
		Recovery can be limited due to the OP being involved too late
	Recovery can be limited due to insufficient collaboration	
	Recovery can be limited due to not having temporary replacing work	
	Recovery can be limited due to patients blaming work for their problems	When clients do not want to error they blame this on their knee still being problematic or painful
	The client needs to be willing to actively be in contact with care givers to keep working	Recovery can be limited due to patients not asking for enough help
Expectations	The patient's expectations are very important to the patient's recovery as it influences their motivation	The patient's expectations are very important to the patient's recovery
		Expectation management is only needed post-operative when the guidance pre-operative was insufficient
	Most patients recover as to expected	Most patients recover as to expected

	Clients' expectations differ depending on how active they are,	Clients' expectations differ depending on how active they are, which influences their experience of the recovery
		The OS realises that wrongful expectations can limit the recovery
		Many patients do not know what to expect post-surgery surrounding their work
	The OP thinks managing expectations are central to their work	Managing expectations is central to the work of the OS
		The OS recognises standard groups of patients who need specific expectation management
Motivating clients	Whether a patient need to be held back or motivated depends both on their work and their personal characteristics	Whether a patient need to be held back or motivated depends on their work and their personal attitude
	When a client needs to be motivated the OP reminds them of their legal obligations	
	The OP always tries to stimulate the client to work, also when they say they are not allowed	

	When clients are motivated they work despite the pain and find ways to stay working	When clients are motivated they work through the pain
	Despite their motivation some clients still have trouble returning to work	
	The OP's guidance depends on a client's own motivation and sense of abilities	Clients with more than average fear, proper expectation management expectations can help them in their recovery
Increasing recovery speed	Training both before and after surgery increases speed of recovery	
	Treating the patient both physically and mentally can increase speed of recovery	
	Proper replacing work increases speed of recovery	Proper work increases speed of recovery
		A big decrease of pain post-operative compare to pre-operative gives the client a boost and increases speed of recovery
	Clients can work earlier because they are careful in finding new ways of loading their knee	
	Proper expectations speed up the client's recovery	Clients assume a less expectant attitude towards their recovery with clearer expectations
	Return-to-work or staying at work is very important for the patient to improve their experience of the recovery	Work is very important for the patient to improve their experience of the recovery

Table 13 Influence of nature of work on recovery

Cluster	[illegible]	[illegible]
Influence of physically demanding work	When a patient's work is more physically demanding, recovery needs to be further along the line before RTW	When a patient's work is more physically demanding, recovery needs to be further along the line before RTW
	More physical complaints exist in physical demanding work, so also more problems	More physical complaints exist in physical demanding work
	Often patients with physically demanding work cannot RTW after surgery	Often patients with physically demanding work cannot RTW after surgery
	Most clients with physically demanding work cannot be schooled for other work and not return to physically demanding work so their recovery takes longer	
	A prosthesis is not a sufficient replacement for a healthy knee when someone does physically challenging work	
	The OP adjusts his guidance when a client has physically demanding work	The OS feels not enough attention is paid to the effect of a prosthesis on a patient's ability to work
Static work and RTW	Clients with non-physically demanding work can return very fast and recover easily	Clients with non-physically demanding work can return very fast
	Clients with non- physically demanding work often experience more mental difficulties	
		When someone works a desk job and is older, the OS would recommend a prosthesis, as it helps there focus on their work
	Often work does not need to be discussed with the OS, as with non-physically demanding work it does not have any influence on recovery	
	With work that is performed seated, adjustments can be realized as well	

Table 14 Current cooperation between OP and OS

Cluster	Occupational Physician	Orthopaedic Surgeon
No interest in contact between OS & OP		The os does not see added benefits in contact with the op for his own practice
		The OS does not take initiative in contacting the op or other physicians, the op needs to do so
		The os does not have enough paid time per client to spend on contacting other physicians
		The OP and OS are not in contact, as this is not a standard part of the process
	As long as the rehabilitation is normal, the op does not need the assistance of the OS	As long as the rehabilitation is normal, the OP should not need the assistance of the OS
	Before surgery, no details of the treatment are certain enough for the OP to need information of the OS	
	Shortly after the surgery the OS has not seen the patient yet, so he has no new information	
		The OP does not want any medical advice that is binding, as it would cost money for the employer
Mode of contact between OP and OS	The current contact is indirect on paper or over email	The current contact is over email
		The os often has direct contact over the phone or in person with other physicians, among whom the op
	The current exchange of information is far from optimal because of it being too slow and a lot of misunderstandings, making information useless	
Feedback of op to os	The OP would be open to more communication, but the os does	The os would like to receive feedback from
	not seem to be interested in feedback	the op, but this is never shared
		The OP could know more about a patient's character than the os and provide insight
		Feedback of the op could help manage a client's expectations

		Feedback from the OP could help in early signalling of problems to improve the treatment plan
Feedback of OS to OP	The kind of answer the OP receives from the OS differs a lot depending on the os and the questions asked by the op	The kind of answer the OP receives of the OS depends on the type of questions asked by the OP
		The os prefers to send the op the letter of the gp
	sometimes the op asks the same question twice for documentation, which annoys the os and results in not receiving an answer	
	often the information from the os takes too long and becomes irrelevant	
The patient as carrier of information	Usually information provided by the patient is sufficient and direct contact between physicians is not needed	Usually information provided by the patient is sufficient
	Physicians only need to be in contact directly when the provided information is unclear	The patient should not be the information carrier
	some patients provide wrongful information because of misunderstanding or not wanting to work	some patients provide wrongful information because of misunderstanding or being unmotivated
		The OS does not read all information provided by patients but does save it somewhere
	Some patients provide the OP with his medical records	
Reasons for contact between the Orthopaedic Surgeon and Occupational Physician	The OP would like to discuss her treatment with the OS The OP would like to know more about the standard process of the OS	The OS would like contact to decide together on the treatment and treatment in rehabilitation to make a protocol
	The OP makes contact when problems occur in the rehabilitation	The OS is contacted when problems occur in the rehabilitation
		The OS makes contact when he suspects the guidance by the OP is insufficient
	The OP wants to discuss in case of psychological problems, as this is not his area of expertise	
		The OS wouldn't call when the patient asks him to
	The OP receives call when having questions about the surgery and expectations for recovery despite the provided information	

		The OS wants contact when the patient experiences pain at work or depending on the load
	The OP reaches out when deciding whether the experienced pain, claimed by the patient, is real	The OS contacts the OP when not trusting the patient's pain experience as it has no medical ground
	The OP reaches out when the cause of the hindered recovery is unclear	
	The OP reaches out to the OS to build a better file for the client	
Content of the information exchange between OS and OP	The information provided by the OS depends on the patient's work	
	The OS informs the OP about the diagnosis, prognosis, results of surgery, points of attention, the decided rehabilitation treatment and future meetings with the patient	The OS informs the OP about the diagnosis, prognosis, results of surgery, the decided rehabilitation treatment and future meetings with the patient
	The OS provides the OP with information about the patient's abilities and allowed movements	The OS provides the OP with information about the patient's abilities and allowed movements
Work-related advice by the OS	The OP wants advice from the OS to help him decide what to tell the client	The OS does not want to say anything about work, as this is not his specialism
	The OS does not answer work related questions asked by the OP	The OS does not answer work related questions
		The OS assumes that most patients can just return to work after the first phase of recovery
	The OP does not want the OS to say anything about work to clients	The OS does not want to talk about work with the patient, this is the OP's domain
	Advice coming from different physicians can be confusing to the patient	
	In the Netherlands the OS is not allowed to say anything regarding work participation	
	Most OS deny saying anything about work and claim that the client must have misinterpreted	
		The OS usually does know what kind of work

		a patient does and how the RTW is going
		Work is discussed after the patient brings it up
		The OS asks patients about their work, especially when they work in physically demanding jobs
		Because the OS researches work, patients receive extra info from the hospital
		Usually the OS does not discuss work, as it is not a standard part of their meeting

Table 15 Ideal cooperation between OS and OP

Cluster	Occupational Physician	Orthopaedic Surgeon
Mode of contact between OP and OS	The cooperation should be as time efficient as possible	The cooperation should be as time efficient as possible
	The OP would like a standard letter after the operation from the OS, instead of having to ask for it	
	Direct contact over the phone is preferred as it facilitates a discussion and asking extra questions	Direct contact over the phone is preferred as it facilitates a discussion
Content of the information exchange between OS and OP	The OS would like to provide insight in the patient's character	The OS would like to provide insight in the patient's character
	The OP does not want to be involved in the treatment plan of the os	
	The OP would prefer being able to look up more information without having to ask for it	
		The OS would like to separate the medical information from the juridical information
		The OS wants the OP to be clearer in what he needs and what he needs it for
Beneficial factors to cooperation	Cooperation is easier when the participants know each others and therefore are faster in reaching out to each other	Cooperation is easier when the participants know each other
		The sports physician is more involved with the patient, which makes cooperation more interesting
		Cooperation is easier when it is based on shared interests and touches upon overlapping fields of expertise
		Cooperation is more difficult with increased (experienced) distance between physicians inside and outside of the hospital
	All physicians need to have their own rank within the cooperation The patient should be the center of attention of his treatment	The patient should be the center of attention of his treatment with the physicians providing information based on their expertise
		Because of the high amount of different OP, a multidisciplinary consultation would be difficult for the OS
		The OS wants more communication between physicians
		Being involved in a team with physicians discussing amongst each other, makes the OS feel more involved

APPENDIX H: INFORMATION LETTER

INFORMATIE OVER EEN VERVOLGONDERZOEK OVER WERKEN NA EEN KNIEPROTHESE

U heeft een knieprothese operatie gehad en in de vragen lijst van het St. Anna ziekenhuis en het AMC aangegeven dat u mogelijk mee zou willen doen aan een vervolgonderzoek over het weer gaan werken na een knieprothese-operatie. Dit is de reden dat u deze brief ontvangt. In deze informatiebrief vindt u meer informatie over de inhoud van het onderzoek en waarom uw deelname voor ons belangrijk is. Mocht u na het lezen van deze brief nog vragen hebben dan kunt u bellen of mailen met onderzoeker Anna Spaenij: 06-41163922 of a.l.spaenij@amc.nl.

WAAROM DIT ONDERZOEK?

Om te zorgen dat zo veel mogelijk patiënten na een knieprotheseoperatie weer aan het werk kunnen, is goede communicatie voor en na de operatie belangrijk tussen u, uw bedrijfsarts en uw orthopedisch chirurg. Tijdens het vervolgonderzoek horen wij graag hoe de huidige begeleiding door uw bedrijfsarts en uw orthopedisch chirurg door u is ervaren, en ook het effect hiervan op uw terugkeer naar werk.

WAT VRAGEN WE U?

Tijdens het interview wordt u gevraagd uw ervaringen over de begeleiding gericht op werk door uw bedrijfsarts en uw orthopedisch chirurg voor en na uw knieprothese-operatie te delen met de onderzoeker Anna Spaenij. Het interview duurt ongeveer 45 minuten en wordt met uw toestemming met audioapparatuur opgenomen. Het meedoen aan het onderzoek heeft geen gevolgen voor uw mogelijke verdere (werk)gerichte begeleiding.

HOE STAAT HET MET MIJN PRIVACY?

Uw gegevens, die tijdens dit interview worden verzameld, worden vertrouwelijk behandeld door het onderzoeksteam en alleen anoniem verwerkt. Uw persoonlijke gegevens worden nooit met naam gebruikt in rapporten, presentaties of besprekingen. Alle documentatie zal in veilige omgeving worden opgeslagen.

WAT LEVERT HET MIJ OP?

Dit interview geeft u de mogelijkheid uw ervaringen te delen met de onderzoeker. Uw ervaringen zullen worden gebruikt als input voor het ontwikkelen van een oplossing ter verbetering van de werkgerichte begeleiding na een knieprothese operatie voor toekomstige patiënten en dragen bij aan het vergroten van de bestaande kennis over mogelijke bevorderende en belemmerende factoren in de werkgerichte zorg voor patiënten met een knieprothese. Ook ontvangt u na afloop van het interview als kleine attentie een cadeaubon ter waarde van 10 euro.

IS DEELNAME OP VRIJWILLIGE BASIS?

De deelname aan het onderzoek is vrijwillig. U kunt op ieder moment besluiten om te stoppen met het interview. Daarvoor hoeft u geen reden op te geven en natuurlijk heeft het verder ook geen negatieve gevolgen voor u.

DOOR WIE WORDT HET ONDERZOEK UITGEVOERD?

Dit onderzoek wordt uitgevoerd door het Coronel Instituut voor Arbeid en Gezondheid van het AMC en de afdeling Medisign van de TU Delft. Het Coronel Instituut voor Arbeid en Gezondheid richt zich op het brede gebied van arbeid en gezondheid en wil de zorg voor werken na een knieprotheseoperatie zo goed mogelijk verbeteren en afstemmen op de wensen van de patiënten. De afdeling Medisign van de TU Delft is een afdeling binnen de faculteit Industrieel Ontwerpen die zich richt op het onderzoeken van de huidige zorg en het ontwikkelen van innovatieve oplossingen om de huidige zorg te verbeteren.

ZIJN ER KOSTEN VERBONDEN AAN DEELNAME?

Deelname aan dit onderzoek kost u alleen tijd.

VRAGEN?

Indien u vragen heeft, kunt u contact opnemen met Anna Spaenij (uitvoerend onderzoeker Coronel Instituut voor Arbeid en Gezondheid) via telefoon: 06-41163922 of email: a.l.spaenij@amc.nl.

Indien u wel of geen interesse heeft in deelname aan dit onderzoek, horen wij dat graag van u. U kunt dit doen door 'ja' of 'nee' te antwoorden op deze email. Wanneer u 'ja' zegt, vragen wij u ook uw telefoonnummer mee te sturen. Dan bellen wij u op om de opzet van het interview verder met u te bespreken en eventuele vragen te beantwoorden. Ook overleggen we met u wat een geschikte datum en tijdstip is. Wanneer u 'nee' zegt heeft dat geen enkel gevolg voor uw begeleiding of behandeling.

Alvast hartelijk dank voor uw reactie!
Vriendelijke groet,
Mede namens Anna Spaenij

Paul Kuijer

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dr P. Paul F.M. Kuijer |Academisch Medisch Centrum |Universiteit van Amsterdam |Coronel Instituut voor Arbeid en Gezondheid |Polikliniek Mens & Arbeid |Nederlands Centrum voor Beroepsziekten |Postbus 22660 |1100 DD Amsterdam |Kamer K0-118 |T 020 566 5339 |F 020 697 7161

APPENDIX I: INVITATION LETTER

Beste heer /mevrouw [naam],

Hartelijk dank voor uw deelname aan het onderzoek 'Verbetering werkgerichte zorg binnen de orthopedie'. In deze bijlage vindt u materialen ter voorbereiding op uw interview op [datum].
Dit pakket bestaat uit 2 onderdelen:

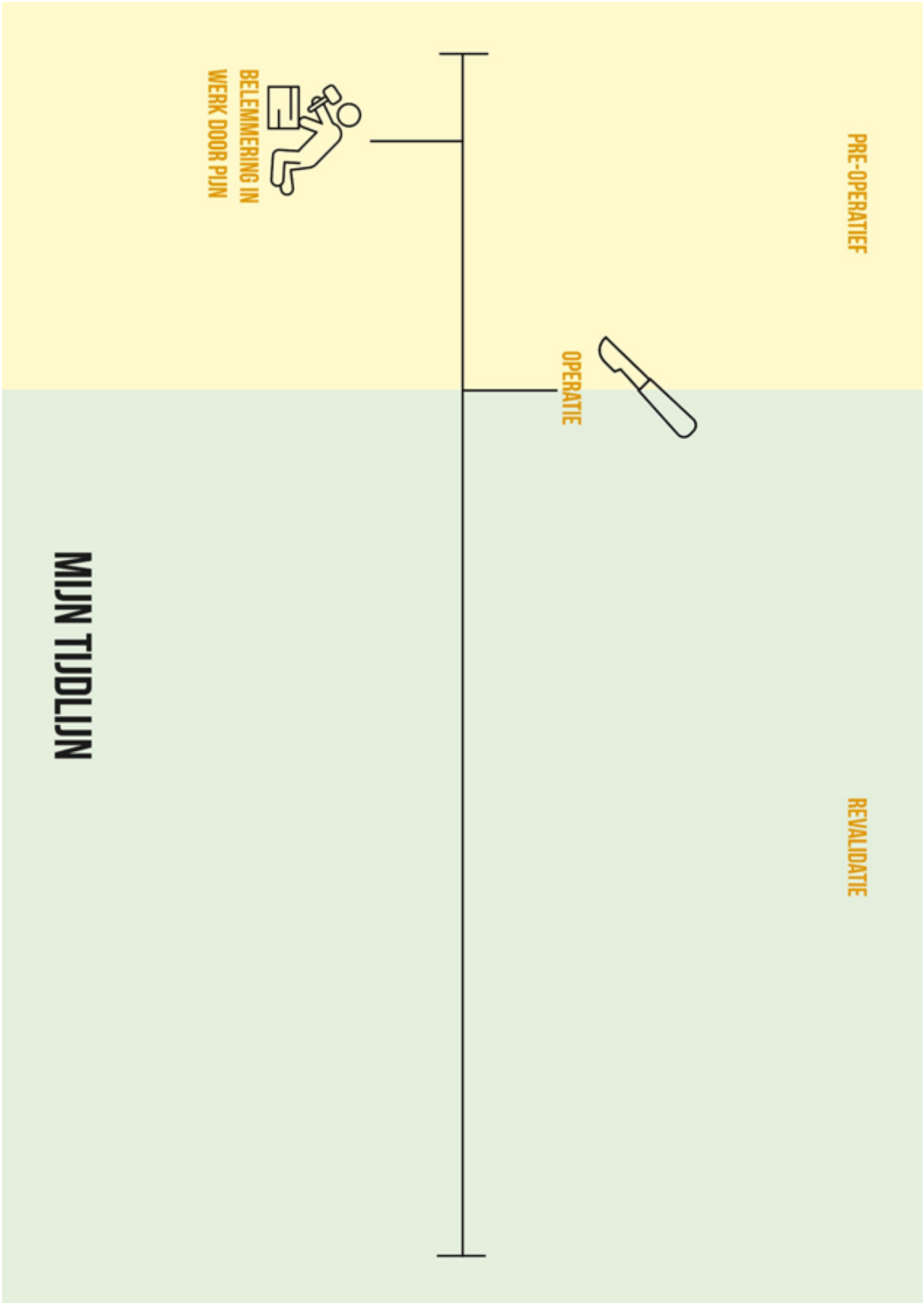
- Deze brief
- Een tijdlijn, waarop u uw eigen ervaringen kan aangeven voor en na de operatie in relatie tot uw werkhervatting. Nadat u deze tijdslijn hebt ingevuld, wordt u gevraagd om positieve en negatieve ervaringen voor uw werkhervatting aan te geven. Deze momenten zullen we ook later tijdens het interview bespreken. Probeer hierbij vooral te richten op momenten die te maken hebben met de begeleiding door zorgverleners, zoals de bedrijfsarts of de orthopeed.

Als u nog vragen heeft, twijfel dan niet om contact met mij op te nemen via de telefoon (0641163922) of via het mailadres: a.l.spaenij@amc.uva.nl
Nogmaals hartelijk bedankt voor uw medewerking. Door uw input krijgen we beter inzicht in waar de zorg verbeterd kan worden!

Ik zie u graag op [dag][datum]!
Met vriendelijke groet,
Anna Spaenij
Tel: 0641163922

Stagaire Coronel Instituut voor Arbeid en Gezondheid
Afstudeerder Industrieel Ontwerpen TU Delft.

APPENDIX J: SENSITISING TIMELINE



APPENDIX K: INFORMED CONSENT FORM

TOESTEMMINGSFORMULIER

voor deelname aan het onderzoek beter op werkgerichte zorg voor patiënten met een knieprothese

Ik verklaar hierbij op een voor mij duidelijke wijze, mondeling en schriftelijk, te zijn ingelicht over de aard, het doel, de risico's en de belasting van het onderzoek. Mijn vragen zijn naar tevredenheid beantwoord. De schriftelijke informatie behorend bij deze verklaring is mij overhandigd. Ik had genoeg tijd om te beslissen of ik aan het onderzoek mee wilde doen.

Ik heb te allen tijde, de vrijheid om op deze beslissing terug te komen, zonder opgave van reden.

Ik weet dat de gegevens uit dit interview anoniem en vertrouwelijk worden behandeld en alleen door de betrokken onderzoekers worden ingezien.

Ik geef wel / geen (omcirkel uw keuze a.u.b.) toestemming om het interview op te nemen met een microfoon.

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

Ik wil wel / geen (omcirkel uw keuze a.u.b.) inzicht in de resultaten van dit onderzoek.

Hierbij verleen ik vrijwillig toestemming voor deelname aan het onderzoek naar verbetering op werkgerichte zorg voor patiënten met een knieprothese.
Naam deelnemer: ..... Geboortedatum:...../...../.....
Geslacht: M / V

Handtekening : ..... datum...../...../2017

In te vullen door onderzoeker:

Ik heb mondelinge en schriftelijke toelichting verstrekt op het onderzoek. Ik verklaar mij bereid nog opkomende vragen over het onderzoek naar vermogen te beantwoorden. Als er tijdens het onderzoek informatie bekend wordt die de toestemming van de
persoon zou kunnen beïnvloeden, dan breng ik hem/haar daarvan tijdig op de hoogte.

Naam onderzoeker (of diens vertegenwoordiger):
.....

Handtekening : ..... datum...../...../2017

APPENDIX L: PILOT RESULTS STUDY 2

The pilot for this research has been done with one TKA patient with physically demanding work, who has returned to work after surgery. The goals of the pilot were; to check the timing of the interview, try out how to incorporate possible contextmapping methods in the interview and to assess their added benefit when compared to the extra time needed.

TIMING

The expected duration of the interviews was 45 minutes. During the pilot, this timing appeared correct, as it took up 42 minutes (excluding the extra time needed for the context mapping methods). This interviewer needs to monitor the time closely and keep the participants on track to make sure all interviews stay within the set time frame.

INCORPORATING CONTEXT MAPPING METHODS

During the interview, the interviewer incorporated the 'create'-phase of the context mapping method, by having the participant make a A3 sheet of images and words that represented their contact with and guidance by their care providers during the pre-surgery and rehabilitation phase. This however did not result in new insights, which were not yet shared during the interview beforehand and took up 13 minutes of extra time, resulting in an interview timeframe of an hour. As the added benefits of this method were limited comared to the high investement needed, it was decided to exclude this phase from the future interviews. An image of the created sheet can be seen in figure 67.

Figure 3: A3 sheet made by participant based on the 'create' phase of the contextmapping method

APPENDIX M: CLUSTERING RESULTS STUDY 2

Table 16:Amount of exercise

Not knowing how much the patient should do	
Facilitators	Barriers
	Because he tried to minimise pressure on his knee, he made his other knee worse
Because he lived with limitations for longer, he has learned to deal with pain	Only a small amount of people know when they are doing to much before going too far
	The patient felt he had to go through his pain, as he had no other choice
The patient wanted to recover faster, so he exercised more voluntarily	The patient does not do all his exercises every day
The patient believed his exercises were especially important in the beginning	
The patient wants to go over his limits sometimes to know what you can and cannot do	The patient had a very hard time knowing what his limits were before going through them
	The patient started moving less to put less pressure on his knee
Cycling was very important to the patient's recovery	
The patient started training before the operation already to know his limits	
	The patient went through his limits especially mentally and energywise
	The patient only notices she went too far afterwards
The patient does the exercises that hurt with extra care	

The patient tries to adjust his level of activity to his exercises every day	
The patient wants to listen to her body but thinks pushing boundaries is also very important	The patient needs to take more rest and listen to her body
The patient knows he wil regret going too far afterwards, so he takes care not to	The patient feels insecure about what and how much movement is good
	The patient did too much of her homework exercises
	The patient tended to do too much and was hindred in his abilities the days afterwards
Movement is only too much when it really bothers them in the long run	
After being warned that she did too much,she took better care	
	Especially in the beginning the patient had a hard time knowing his

Table 17: Contact with other patients

Facilitators	Barriers
Rehabilitating in a group challenged the patient more than individual rehabilitation would have	
Rehabilitation in a group helped to form expectations and therefore motivate the patient	In the end your own experiences are more important than those of others, so those should not be guiding in your expectations
Talking with other patients caused recognition and a sense of support	
Seeing other people who go through the same things was very nice	Talking to others makes no sense, as no one goes through the exact same things
Even towards the end, the patient likes to talk to other patients every once in a while	
Seeing other patients was especially nice in the beginning	
Other patients can recommend to go to a specific doctor	

It is nice to know whether other people struggle with the same things	
Sharing your own experiences in the rehabilitation is nice	
The patient suddenly came across a lot of people who had undergone the same surgery or knew someone who did	
	By talking to others, you can find out that other doctors might advise very different things, this causes doubt
Being able to compare your rehabilitation experiences with other helps put them in perspective	

Table 18: Workplace influences on RTW

Workplace influences	
Facilitators	Barriers
he patient really likes his job	
The patient could start with deskwork, as she works in a managerial function	The patient cannot do deskwork at his original employer
The patient was allowed to return very gradually to work	
The patient felt very supported by his employer	The patient experienced pressure from the new employer as he did not know her yet
The workplace helped the patient in solving his mobility issues	
The patient is allowed to decide how he conducts his work by himself and how to spend his time	
	The employer pressured for clarity and to be able to know what to expect
The workplace has been adapted to the patients post-surgery needs	

The patient had taken care to make sure her leave would not cause troubles	
	The patient stayed at work even when he should go home, as he felt responsible for his work partner being able to finish his shift
The patient did not want to be without a job, so he immediately started searching for a new one	
	Because he had his own company the patient could not take enough rest
The patient felt responsible for the people he normally maanaged and therefore felt he had to go back as soon as possible	
The patient did not need to work for income, but really wanted to	
Colleagues supported the patient so she could work as much she wanted in the way she could	

Table 19: RTW advice

RTW advise	
Facilitators	Barriers
The patient thought it was nice to know he especially needed to watch the lifting and standing activities at work	
The occupational physician did not need to be contacted unless the patient experienced troubles	
The patient would have wanted to go to the occupational physican to get more guidance for work activities	The occupational phsycian did not provide guidance in what activities the patient should and should not do in a day
Most work-related things could be discussed directly with the employer	
The physio also helped in discussing what the patient was allowed to do at work	The physiotherapist did not want to answer work related questions and referred to the OS
	The patient feels like she did not get enough guidance and tips based on work

The patient was advised to work less already before the surgery eventhough she did not want to, this turned out to be very good for her	
The occupational physician and the patient reflected on work recovery and her personal function recovery to make new plans	
	The rheumatologist had to convince the patient to stop working as he would not listen to the other physicians (no
	The patient just wanted to go back to work and therefore did not reflect on whether it was good for his physical state
	The patient would not ask the occupational physician for advise
	The patient has had bad experiences in the past and does not trust the occupational physician anymore
	The occupational physician and the orthopaedic surgeon tend to give different advices for work

Table 20: Tricks to be able to work

Tricks to be able to work	
Facilitators	Barriers
By changing the way she performs her movements, she can do all activities at work	The patient forgets to take care of her movements when doing them subconscious
To be able to go to work the patient learned to drive faster than he was supposed to	
The patient accepts the duration of recovery but thinks of anything to be as functional as possible	

Table 21: Collaboration and communication of care providers

Communication and collaboration of doctors	
Positive	Points of improvement
The hospital send a list and a planning to the physiotherapist through the patient	The physiotherapists in the hospital should contact the external physiotherapists for tips
The OP did not feel contact with the physiotherapist was necessary despite the patient recommending it	
The OP and physiotherapist contacted eachother once, when the OP suspected problems in the physical recovery	The occupational physician and physiotherapist should collaborate more
The occupational physician and the employer had good contact	
The physiotherapist provided a letter for the OS with exercises, current state and his feedback	The patient never received anything in paper on his rehabilitation
	The patient feels that the doctors do not really read the information provided to them
The patient had a casemanager and an OP and a reintegration manager who were all in contact amongst eachother as well	
After all conversations the OP wrote a letter to the casemanager	
The patient would like it when the physiotherapist and OS would discuss more	The patient thinks, the OS does not really have anything to add for the physiotherapist
	The OS did not really do anything with the info the patient brought from the physio
	The OS, physio and OP should be in better contact, the GP is not needed
	The patient would like the treating physicians to complete eachother
	When establishing a combined treatment plan, the doctors should be in contact more

	Information should be shared more as the patient has to answer many the same questions
	With better contact between the physicians, the GP would have to spend less unnecessary time seeing
The OP and OS are only in contact when problems occur in recovery	
	The patient did not feel he could just call the physicians
The patient was contacted by the physicians over the mail, phone and post	
The OS's consulted together with the patient before surgery to make sure they both had all the information	

Table 22: Patient contact with care providers

Facilitators	Barriers
A two-side connection between the patient and treaters is important	
As the patient knew everybody after a while, she enjoyed the guidance in the whole process	
The patient trusts the physicians' expertise	The patient would like more answers but does not believe the doctors can provide them
The patient thinks it is important to be honest to the physicians and the physicians to him	The physicians should not come up with excuses
	The patient understands that physicians could have a hard time estamitaing a patients individual
The physicians tried everything they could	
	Too many people provide too many opinions
	The one OP gave other advises than the other OP

	The patient felt left out by the doctors
	The patient would have liked the doctors to improve her quality of life instead of just her physical problems
	The patient does not trust the doctors to be able to help her anymore
	The patient does not know where to look for solutions

Table 23: Patient contact with OP

Facilitators	Barriers
The patient and OP already knew eachother	
The OP protected the patient from returning to work too early	The patient had previous experiences
The patient thinks the OP's guidance was very good and promoted the right work recovery	
The OP showed a lot of understanding	
The patient did not feel the need to work recovery until the OP contacted him	
The OP had a lot of experience guiding people in heavy occupations after a kneesurgery, which made the patient feel secure	
The patient thinks the employer is the most important person to inform by the OP in order to ensure work recovery	
The OP always listened well and is always available with problems	
The patient only needed to contact the OP when experiencing problems	
The OP's guidance was just right for the patient	

	The patient believed he was recovered before the OP believed him
The OP helped the patient return to his own work instead of pushing other work	The OP pushed the patient to work in the office instead of his won work
	Some people allow themselves to be convinced to go to work before they are ready, you cannot be a pushover
	Different OP's have different opinions
	The OP judged too fast, before getting to know the patient's personal situation
	The patient felt not taken serious by the OP
	The patient had to travel far to reach the OP
	The OP did not listen to the advise of the other physicians
	The UWV and OP have different opinions

Table 24: Patient contact with GP

Guidance by the GP	
Facilitators	Barriers
The GP was very willing to help wherever needed	
The GP asks for personal experiences instead of just the state of recovery	
The GP only needed to hear from the patient when it was not covered by the other physicians	The GP advised the patient against the OS's advise
The GP helped the patient through the process, as he could not do it mentally	
	The GP just agreed with anything the patient said

Table 25: Patient contact with OS

Facilitators	Barriers
The OS tried all available treatments despite not really believing in them	The patient did not get injections as the OS did not believe in them
The OS clearly explained his decisions	The OS made the decision to place a prothesis too fast
The patient could always call the OS and was helped asap	
The OS was very direct and professional	
The OS was ok doing the surgery before retirement	
The operation could be scheduled aroung the patients private engagements	
The OS was very open for input from the patient	The OS just wanted to perform surgery and therefore was bline to other options
The patient was happy to be able to have surgery fast	
TheOS had helped the patient through previous surgeries	
The OS showed a lot of commitment	
The OS allowed the patient to make his own choices	The OS did not allow the patient to make his own choices, because he really needed the prosthesis
The OS provided the patient with clear advises on what decisions to make	The OS was not willing to answer the patient's questions
The OS listened well	
The OS adjusted his guidance and explanations to the patients needs	The OS's answers were very standard and not adjusted to the patient's personal situation

The OS was willing to spend all time needed on the patient	
The patient trusted the OS to always be right	
The OS really focused on his own area of expertise	
	The Os made too light of his treatment and recovery
	The OS disappeared after the surgery
	The patient had a hard time communicating with his OS
	The patient felt no personal connection to the OS, as he did not talk very much
	The OS just send the patient home instead of providing different solutions
	The OS's answers were very unclear to the patient
	The patient was blamed for waiting to long before doing surgery, despite it not being his fault
	The OS should have put more pressure on the patient to return for

Table 26: Patient contact with physiotherapist

Facilitators	Barriers
The physiotherapists guidance really motivated the patient (to keep exercising after the sessions)	
The patient believes that the exercises really helped his rehabilitation as he did them faithfully	
The physiotherapist's guidance was very intense in the beginning, which was important to the patient	The patient had expected to be guided more intensely
The physiotherapist provided the patient with discipline	
The therapy was good to combine with work, because of the late hours	

The physiotherapist was always willing to answer all the patient's questions	
The guidance of the physiotherapist was very nice	
The patient is always allowed to call the physiotherapist	
The physiotherapist was a nice and pretty girl	
	The physiotherapist did not know how to help the patient, as he did not have clear problems
The physiotherapist stuck to her expertise	
The physiotherapist did not whine and did not belittle the patient	
The physio allowed the patient to decide the speed of his treatment	
The physiotherapist helped the patient reach therapy when he was less	
The physio motivated the patient to push his limits	The physiotherapist kept telling the patient not to accept the outcome of his treatment
The physio helped the patient make decisions before surgery based on the consequences of his treatments	
The physiotherapist provided mental support	The patient wonders why the physiotherapist made her keep up hope,when there were no options left
	The physiotherapist provided the patient with expectations on rehabilitation that did not come true
The physio was closeby	
The physio was very practical	

Table 27: Patient need for guidance

Facilitators	Barriers
The patient did not see the GP after surgery as he did not feel he had anything to offer	
The patient only wants contact when experiencing problems and the physicians allowed that	
The patient likes she can always call the hospitals with questions	
	The patient thinks that because she did not ask for enough help she did not get it
While working the patient needs less therapy	
	The patient called when experiencing troubles but it turned out to solve itsself, he felt like he wasted time
	The patient wants to know more about what his lifestyle does to his prosthesis
	The patient wanted more guidance in what to spend his energy on during rehabilitation
	Physicians cannot know for every individual person what they can and cannot do
	The patient did not feel he needed contact with the OP because he could go back to work very early on
The OP can advise your direct environment when the patient is out of the running for longer	
The patient only wants contact with the OP when there are tensions at work	
The patient needed less guidance due to having previous experiences	
The patient needed mental support and motivation	

The patient felt good being allowed to do parts of the recovery by herself	

Table 28: Information pre-surgery

Facilitators	Barriers
	The patient felt she did not receive enough information on what changes needed to be made at home
The patient knew he needed to move as soon as possible to help rehabilitation	
The patient was advised to work less physically demanding before surgery, which helped recovery	
The patient understood well why he needed surgery and why he needed a double knee surgery	The OS did not explain how bad the patient's knees were, he had to hear from the physio
The patient knew he had to work from home in the beginning	
	The patient still has a lot of unanswered questions on het abilities and her allowances
The patient knows rehabilitation is different fot everyone and everytime	
	The patient did not listen to the OS and waited to long with surgery
	The patient did not want to use medication, especially for sleep
	The patient has heard different advises and does not know what to believe anymore
The information night before surgery was very good	
	The physician assistents tried to answer her questions but did not have the information either
	The patient was not roperly informed on the possible side effects of alternative medicine
The patient had expected rehabilitation to be slow	The expectations set by the physicians were not met

	The patient would like to also be told about other possible outcomes next to the ideal possibility
The patient thought it was important to learn about the operation	The information provided by the hospital only focused on the hospitalisation
The hospital provided the patient with an app to help set expectations for recovery	
The patient had prepared herself for the conversations with the physicians by looking up info on the internet	

Table 29: Reasons to decide for surgery

Facilitators	Barriers
The patient decided for the prosthesis when he could not sleep very well anymore and the knee caused problems in other parts of his body	
	The patient thought he was too young for surgery
Recovery was supposed to be easier when the patient was still young	
The patient's family convinced her that she needed to undergo surgery at some point so why not now	
The patient knew that she would regret not having surgery as well	
The patient decided on surgery when he could not work anymore	
	The patient felt the prothesis is too definitive, as there might be new options in a few years
	The patient felt he owed his employer to keep working as long as possible
	When being retired the patient would not have taken a prosthesis, as he would not have needed his knees as much
The patient needed to have surgery, because the state of his knees was too bad	

	The patient waited as long as possible, as he thought his own knee to valuable
	The chance something might go wrong made the patiet doubt having surgery
	The patient did not want to believe something was really wrong
The patient felt he held back his environment	
	The patient wanted to have surgery after retirement
The OS decided to do surgery when the conservative treatments did not work anymore	

Table 30: Experiences during rehabilitation

Facilitators	Barriers
The patient feels him being physically fit helped make rehabilitation easier	
	When the operation was postponed, this was very difficult for the patient
The OS send the patient to a rehabilitation centre, which the patient did not want but was good in the end	
	Complications made the patient have to stay in the hospital longer
The patient wanted to stay in the hospital for longer as he lived alone	
	The patient felt too much was tested on her
The patient liked that the physicians recognised the mistakes were not her doing	
	The first time after his setback, the patient felt very insecure

Goals depend on what a patient can do before surgery	
	The patient feels insecure not knowing whether the things she can do are also prudent to do
Eventhough rehabilitation is slow the patient does notices progress	
	The patient believes her recovery would have been easier if her job had been less challenging
Any treatment is fine as long as it makes him better in the end	
The patient's earlier experiences helped him through the process	The patient had expectations because of earlier surgeries, which were hard to adjust
	The patient had a hard time coming to terms with being slower than before
The patient was happy with rehabilitation as it went faster than expected	

Table 31: Result of rehabilitation

Experiences of the outcomes of rehabilitation	
Facilitators	Barriers
The patient is happy with his regained abilities	
The patient is content enough to go through the whole process again	
The patient is happy to have very little to no pain after surgery, especially when compared to before	
The patient feels recovery went very well afterwards	
The patient was glad to just be able to give in to the process	
	The patient believes that when a former experience was less, the second time will be more difficult

	The patient still needs rest for her knee
	Because the patient decided to keep her kneecap, he still feels discomfort at the end of the day
The patient felt good about being ready for work both physical and mental very early on after surgery	
	As she still has a lot of pain and is hindred in her function, she feels surgery was not helpful
The patient is especially happy with his completely regained function as he had not expected this beforehand	Despite knowing the possibility existed for a less than ideal outcome, the patient has a hard time coming to terms with it
	The patient fears she will have to live with her discomfort to the end
	The patient wants to be able to do anything she wants, as she is still so young
	The patient is disappointed as she had expected all to be well after surgery
The patient understands everybody makes mistake	The patient believes the doctors made many mistakes
Being more mobile is the most important to the patient	
	The patient does not understand why her outcome is less than ideal
	The patient has a hard time coming to terms with her lesser abilities as she has grown older
	The patient feels he has waited too long with surgery
The patient had expected more pain, so was happy with the amount he had	
	In the end the patient thinks he went back to work too soon

Table 32: Feedback on idea 1

Positive	Points of improvement
Other people can give feedback to check whether goals are realistic	
It can be very helpful to explain progress to other people	
When they know what to expact, the family can take it into account in their plans	
	The physio did discuss goals, but making a real plan might not fit in their way of working
	The occupational physician did discuss goals, but never made a
	The patient would like to set goals for regaining his function, not for
Nice to reread the information and reflect in your own time, after the conversation	
Very visual for the occupational physician	
Nice to directly carry information from the physiotherapist to the occupational physician	
	Medication should also be included as it changes your experience of your function
Setting out a plan helps create a personal connection with the physicians	
	The plan should be adaptable to the patient at that moment in time

Table 33: Feedback on idea 2

Positive	Points for improvement
The physiotherapist and especially the occupational physician can easily see the process in one view	
It would be very helpful for the patient to have all information in onw place	
	When a patient can add their own experiences, the physicians are able to better understand the person behind the patient
	When the patient can also add their complaints to the calendar, the physicians might be able to spot patterns
	Filling out the patient experience could be restricted to special moments in the process
Other people being able to see the patient's records would be fine to the patient	The patient has very many different doctors for each function, so she would not want all of them to just be able to see her files
The patient would feel supported with the physician's information to back up her stories to the other physicians	
	The patient does not need an extra agenda, as she already has one
It is very helpful to have the contact information of the physicians and to know who to contact for what	
	The subjects on which the physicians write their feedback should be based on the fist conversation with the patient
	The patient wants to be able to reflect on the information provided by the physicians, so they cannot misunderstand
	The tool should have very clear benefits over printing a report

Table 34: Feedback on idea 3

Positive	Points for improvement
A tool that warns you when not moving enough can be very motivating	
	It might be very hard for the physio to estimate what a person can and cannot do in the beginning
It would be very helpful before being able to return to work to be able to have related goals that are adjusted over time	
	The patient has had a fitbit but turned out to be allergic to the material of the band
The patient thinks that it is important to use the available technology for rehabilitation	The patient does not like too much technology
	The patient is not allowed to wear jewelry at work
	The patient is not allowed to use her phone at work
It would be very good to receive a warning before going over the limit	
Thie tool could help provide patients with more insight in how much they should exercise and what	
When the physicians are more involved on a daily basis the patient would feel more inclined to ask questions when thinking something is wrong	
	It would be good if the activities are adjusted to the level of activities of days before
Having your own data, would help prove your story on your progress	
The patient wants to be reminded when she forgets to do the exercises presented by the	
	It is not a complete image without being able to measure all kinds of movement, eating, sleeping and things like heartrate
	Rewards would make it even more stimulating
	The physicians should only receive information that they actually need to act upon, in order to not put too much pressure on them

APPENDIX N: INTERACTION VISION

Based on the desired interaction a fitting interaction vision, as can be seen in figure 68.

In this interaction vision the experience of the occupational physician and orthopaedic surgeon in the to be designed interaction is described. This vision shows a professional setting, in which information is conveyed in a quick and direct, therefore it needs to be efficient, way. The setting is somewhat informal and familiar. But, as the participants are colleagues, which means more acquaintances than friends, the interaction is involved, cordial and pleasant while remaining sufficiently detached to be practical and to the point. As these participants have been colleagues for a longer time, they know and understand each other's thinking and interests, which ensure that they especially share the things which would interest the other as well as that are shared interests.

This vision expresses the interaction goal of the to be designed solutions. This will be combined with the problem definition formulated in the next chapter to be the starting point of the ideation phase.

CATCHING UP WITH A LONG-TIME COLLEAGUE OVER A QUICK COFFEE

Figure 4: Desired interaction vision

APPENDIX O: CONCEPT CHOICE

Wishes	Weight	Wagenaide exam	MyTeam	Out of office
The solution should fit in the way of working of both orthopaedic surgeon and occupational physician	2	4	2	-4
The solution has to facilitate expectation management of the client	2	2	4	-4
Should be as time efficient for the physicians as possible	2	2	4	2
The solution should clarify the processes of the orthopaedic surgeon and occupational physician to each other	1	1	2	-2
The solution should make the interaction between orthopaedic surgeon and occupational physician more personal	0.5	0.5	1	-0.5
The solution should be usable for the most important care professionals in the patient's care	2	2	4	4
The solution should stimulate personal goal setting depending on the patient's work	2	4	4	2
The solution should make the care professionals feel more involved in the whole of the patient's	0.5	0.5	1	1
The solution should focus on the care professionals individual fields of expertise	1	2	2	-1
The information provided by the orthopaedic surgeon should be easily translatable in functional allowances in the patient's work	2	4	2	-2
The information exchanged should provide insight in patient specific characteristics	1	2	2	1
The care providers should be able to see when the patient meets with whom	0.5	0.5	1	-0.5
The care providers should be informed when possible problems in the patient's rehabilitation could be occuring	2	-2	4	4
The patient's progress in different areas of his rehabilitation should be visible for all care providers	1	2	2	-1
The solution should facilitate more standardised formulation of communication between the caregivers	1	2	2	-1
The solution should be possible to use both when in direct or in indirect contact with the patient	0.5	-1	0.5	1
The orthopaedic surgeon should feel secure knowing what the information provided is used for	0.5	0.5	0.5	1
All care professionals should be able to look into relevant parts of each other's patient files with the patient's consent	2	2	4	-2

The patient should be able to see what information is exchanged between the care professionals	1	2	1	1
The tool should allow patients to only share the information they feel comfortable sharing with other patients	2	4	2	2
Should assist the patient in sharing his progress during meetings with physicians	1	1	2	2
Should allow for the patient to share his rehabilitation progress with his family and friends	0.5	1	1	0.5
The tool has to make the patient aware of both the expected process as well as possible outcomes that differ from the average or ideal	1	-1	2	1
Should make information of the patient's care and progress available to him outside of meetings with the physicians	1	2	2	1
Should allow for the patient to report on his experiences during recovery	1	1	2	2
Should make the patient aware of actions to be taken to promote the process at home	0.5	-0.5	-0.5	-1
Should stimulate a more personal and involved contact between the patient and his physicians	2	2	4	4
Should help the patient to understand the effect of his activities and activity level on the prosthesis	1	-1	1	2
The tool should allow patients to only connect others when they want to	1	2	1	2
The tool should help manage expectations of the employer	1	1	2	-1
The tool should provide more insight in the patient's personal abilities in both medical-technical terms and practice	1	1	2	2
Should provide understanding in allowances and abilities and what activities are prudent as well	2	-2	-2	2
Should give the patient guidance in regulating his activity level	1	-1	1	2
The physicians should only be provided with information that they can directly use in their practice	1	2	1	-1
The tool should help the patient remind to do the exercises prescribed by the physiotherapist	0.5	0.5	0.5	1
The tool should stimulate contact with patients in similar situations	1	-1	2	-2
Should allow the patient to directly contact his physicians	1	-2	2	1
It should help physicians estimate a patient's personal abilities and limitations	2	2	2	4
The technology used should be as easily navigated as possible	1	2	1	1
	Total	48	70	59.5

APPENDIX P: INFORMATION LETTER PHYSICIANS

Beste [naam],

Om te zorgen dat zo veel mogelijk patiënten na een knieprotheseoperatie weer aan het werk kunnen is goede communicatie tijdens de aanloop naar de operatie en nazorg zeer belangrijk. Hierbij spelen zowel de bedrijfsarts als de orthopedisch chirurg een centrale rol.

Na ons eerdere gesprek in de eerste fase van dit project, waarin u uw huidige begeleiding van werkende patiënten met een knieprothese en de huidige samenwerking tussen bedrijfsarts en orthopeed heeft toegelicht, heeft een tweede studie plaatsgevonden. Deze was gericht op de ervaringen met patiënten omtrent hun werkgerichte begeleiding voor en na het krijgen van een knieprothese.

Voor deze derde studie, vragen wij u om deel te nemen aan een evaluatiegesprek. Het doel van dit gesprek is het evalueren van de communicatie tool, welke is ontwikkeld als vervolg op de twee eerdere studies, op; de werkbaarheid, mogelijke effectiviteit en het vervullen van de behoeften in de werk-gerichte begeleiding van patiënten met een knieprothese in knie-belastende beroepen. De onderzoeksgegevens kunnen alleen worden ingezien door de onderzoekers. De gegevens die tijdens dit onderzoek worden verzamelend, worden anoniem verwerkt. Uw persoonlijke gegevens worden nooit gebruikt in documentatie, rapporten of publicaties.

Er zijn voor u geen risico's verbonden aan deelname aan het interview.
Als u besluit deel te nemen aan het interview, wordt u gevraagd het bijgevoegde toestemmingsformulier te ondertekenen.

Dit interview wordt uitgevoerd binnen de context van het Coronel Instituut voor Arbeid en Gezondheid in een onderzoekslijn met dr. Paul Kuijer en prof. dr. Monique Frings-Dresen. Als u na het interview nog vragen hebt kunt u contact opnemen met Anna Spaenij (uitvoerend onderzoeker), telefoon: 0641163922 of mail: a.l.spaenij@amc.nl.

Alvast hartelijk dank voor uw medewerking!

APPENDIX Q: INFORMATION LETTER PATIENTS

INFORMATIE OVER EEN VERVOLGONDERZOEK OVER WERKEN NA EEN KNIEPROTHESE

Dankzij uw hulp in de vervolgstudie over het weer gaan werken na een knie-prothese operatie, is een tool ontwikkeld wat de begeleiding naar werkherstel van patiënten zoals u ten goede zou kunnen komen. Aangezien uw input is gebruikt voor het ontwikkelen van deze tool, zou ik u willen uitnodigen deel te nemen aan een tweede vervolgstudie om de tool te evalueren. Dit is de reden dat u deze brief ontvangt. In deze informatiebrief vindt u meer informatie over de inhoud van het onderzoek en waarom uw deelname voor ons belangrijk is. Mocht u na het lezen van deze brief nog vragen hebben dan kunt u bellen of mailen met onderzoeker Anna Spaenij: 06-41163922 of a.l.spaenij@amc.nl.

WAAROM DIT ONDERZOEK?

Om te zorgen dat zo veel mogelijk patiënten na een knieprotheseoperatie weer aan het werk kunnen, is goede communicatie voor en na de operatie belangrijk tussen u en uw behandelaars, met name uw bedrijfsarts. Tijdens dit evaluatie onderzoek horen wij graag of de tool, welke is ontwikkeld naar aanleiding van uw ervaring tijdens het herstellen van de knieprothese operatie naar werk toe, aansluit bij uw behoeften tijdens dit proces.

WAT VRAGEN WE U?

Tijdens het interview wordt u gevraagd om een aantal opdrachten uit te voeren, gebruikmakend van een prototype van de ontwikkelde tool en achteraf hierover uw mening te delen met de onderzoeker Anna Spaenij. Het interview duurt ongeveer 45 minuten en wordt met uw toestemming met zowel film- als audioapparatuur opgenomen. Het meedoen aan het onderzoek heeft geen gevolgen voor uw mogelijke verdere (werk)gerichte begeleiding.

HOE STAAT HET MET MIJN PRIVACY?

Uw gegevens, die tijdens dit interview worden verzameld, worden vertrouwelijk behandeld door het onderzoeksteam en alleen anoniem verwerkt. Uw persoonlijke gegevens worden nooit met naam gebruikt in rapporten, presentaties of besprekingen. Alle documentatie zal in veilige omgeving worden opgeslagen.

WAT LEVERT HET MIJ OP?

Dit interview geeft u de mogelijkheid mee te werken aan het verbeteren van de toekomstige werk-gerichte begeleiding voor patiënten zoals u, mede om uw ervaringen te delen met de onderzoeker. Uw meningen en ervaringen zullen worden gebruikt als input voor het door ontwikkelen van deze tool ter verbetering van de werkgerichte begeleiding na een knieprothese operatie en dragen bij aan het vergroten van de bestaande kennis over mogelijke bevorderende en belemmerende factoren in de werkgerichte zorg voor patiënten met een knieprothese.

IS DEELNAME OP VRIJWILLIGE BASIS?

De deelname aan het onderzoek is vrijwillig. U kunt op ieder moment besluiten om te stoppen met het interview. Daarvoor hoeft u geen reden op te geven en natuurlijk heeft het verder ook geen negatieve gevolgen voor u.

DOOR WIE WORDT HET ONDERZOEK UITGEVOERD?

Dit onderzoek wordt uitgevoerd door het Coronel Instituut voor Arbeid en Gezondheid van het AMC en de afdeling Medisign van de TU Delft. Het Coronel Instituut voor Arbeid en Gezondheid richt zich op het brede gebied van arbeid en gezondheid en wil de zorg voor werken na een knieprotheseoperatie zo goed mogelijk verbeteren en afstemmen op de wensen van de patiënten.

De afdeling Medisign van de TU Delft is een afdeling binnen de faculteit Industrieel Ontwerpen die zich richt op het onderzoeken van de huidige zorg en het ontwikkelen van innovatieve oplossingen om de huidige zorg te verbeteren.

ZIJN ER KOSTEN VERBONDEN AAN DEELNAME?

Deelname aan dit onderzoek kost u alleen tijd.

VRAGEN?

Indien u vragen heeft, kunt u contact opnemen met Anna Spaenij (uitvoerend onderzoeker Coronel Instituut voor Arbeid en Gezondheid) via telefoon: 06-41163922 of email: a.l.spaenij@amc.nl.

Indien u wel of geen interesse heeft in deelname aan dit onderzoek, horen wij dat graag van u. U kunt dit doen door 'ja' of 'nee' te antwoorden op deze email. Wanneer u 'ja' zegt, vragen wij u ook uw telefoonnummer mee te sturen. Dan bellen wij u op om de opzet van het interview verder met u te bespreken en eventuele vragen te beantwoorden. Ook overleggen we met u wat een geschikte datum en tijdstip is. Wanneer u 'nee' zegt heeft dat geen enkel gevolg voor uw begeleiding of behandeling.

Alvast hartelijk dank voor uw reactie!
Vriendelijke groet,

Anna Spaenij

APPENDIX R: INFORMED CONSENT

TOESTEMMINGSFORMULIER

voor deelname aan het onderzoek evaluatie tool ter verbetering op werkgerichte zorg voor patiënten met een knieprothese

Ik verklaar hierbij op een voor mij duidelijke wijze, mondeling en schriftelijk, te zijn ingelicht over de aard, het doel, de risico's en de belasting van het onderzoek. Mijn vragen zijn naar tevredenheid beantwoord. De schriftelijke informatie behorend bij deze verklaring is mij overhandigd. Ik had genoeg tijd om te beslissen of ik aan het onderzoek mee wilde doen.

Ik heb te allen tijde, de vrijheid om op deze beslissing terug te komen, zonder opgave van reden.

Ik weet dat de gegevens uit dit interview anoniem en vertrouwelijk worden behandeld en alleen door de betrokken onderzoekers worden ingezien.

Ik geef **wel / geen** (omcirkel uw keuze a.u.b.) toestemming om de walkthrough op te nemen met een videorecorder.

Ik geef **wel / geen** (omcirkel uw keuze a.u.b.) toestemming om het interview op te nemen met een microfoon.

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

Ik wil wel / geen (omcirkel uw keuze a.u.b.) inzicht in de resultaten van dit onderzoek.

Hierbij verleen ik vrijwillig toestemming voor deelname aan het onderzoek naar evaluatie van tool ter verbetering op werkgerichte zorg voor patiënten met een knieprothese.

Naam deelnemer: ..... Geboortedatum:...../...../.....
Geslacht: M / V

Handtekening: ..... datum...../...../2017

In te vullen door onderzoeker:

Ik heb mondelinge en schriftelijke toelichting verstrekt op het onderzoek. Ik verklaar mij bereid nog opkomende vragen over het onderzoek naar vermogen te beantwoorden. Als er tijdens het onderzoek informatie bekend wordt die de toestemming van de persoon zou kunnen beïnvloeden, dan breng ik hem/haar daarvan tijdig op de hoogte.

Naam onderzoeker (of diens vertegenwoordiger):
.....

Handtekening: ..... datum...../...../2017

APPENDIX S: EVALUATION SURVEY

Kruis alsjebleift de vakjes naast de 5 woorden aan, die volgens jou passen bij hoe het systeem de communicatie tussen jou en je artsen zou doen aanvoelen. Probeer je voor te stellen hoe deze tool de huidige manier van met elkaar omgaan had verandert.

Dit systeem stimuleert een interactie die zou aanvoelen als...

- ○ Opwindend
- ○ Leidend
- ○ Direct
- ○ Onduidelijk
- ○ Actief
- ○ Interessant
- ○ Ondersteunend
- ○ Betrokken
- ○ Tijdsefficiënt
- ○ Onzeker
- ○ Intens
- ○ Beperkt
- ○ Evenwichtig
- ○ Eerlijk
- ○ Onderdanig
- ○ Passief
- ○ Gecontroleerd
- ○ Frustrerend
- ○ Persoonlijk
- ○ Transparant
- ○ Ingrijpend
- ○ Nutteloos
- ○ Omslachtig
- ○ Nieuw
- ○ Patiënt centraal
- ○ Professioneel
- ○ Verbonden
- ○ Oppervlakkig
- ○ Vriendelijk
- ○ Koud
- ○ Privé
- ○ Simpel
- ○ Geruststellend

APPENDIX T: PILOT STUDY 3

During the first interview, which took place with a patient, the Lookback system, in which the participants' taps during the evaluation were registered and his speech recorded, was tested offline for the first time. The system worked without any issues, resulting in very clear feedback.

During the pilot, the participant had a hard time completing certain tasks not due to the interface but because of the way the app was built in Marvel;

- The hotspots, linking the screens to each other, should be bigger with more room surrounding the tappable icon.
- Some screens had shifted in the app, which placed hotspots on wrong parts of the screen. Parts that should have been tappable, thus lead to no response.

During the pilot, it was also found that the system needed more screens that were unrelated to the evaluation exercises which the participant had to complete. It was expected that screens with obviously clickable elements, that did not lead anywhere, would make clear that the participant should find the solution to the assignments in another screen. However, during the pilot this confused the participant instead. After the pilot, more screens have been added.

Furthermore, the pilot participants were confused by the app using a hypothetical situation, which was not always related to their own experiences. Therefore, after the pilot, more focused was placed on the situation in the app being hypothetical and that in the real app the information would be fitting with their own personal situation.

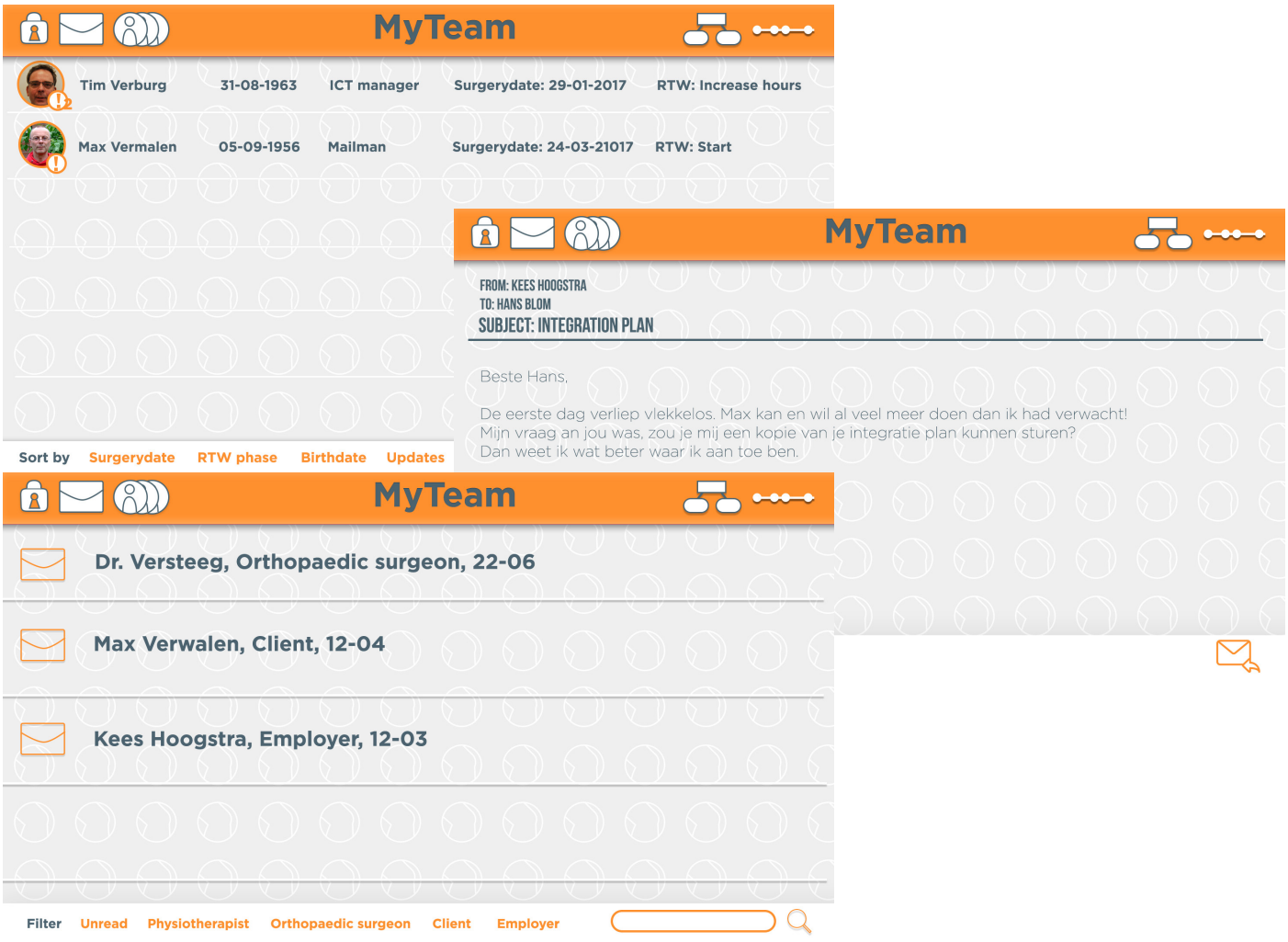


Figure 5: extra screens

APPENDIX U: RESULTS USABILITY ISSUES STUDY

Level 1:	Level 2:	Level 3	Level 4	Voorbeeld	Quote	Amount	Severity	Effect on use
Planning	Users knowledge of system state			Participants do not know what page they are on	OP 1: 'Is dit het zorgplan?' OP 2: 'Want hier staat continu MyTeam boven.'	2	3	Participants do not recognise to have found the information they need
				Participants do not see what button matches the page they are currently on	PA 1: 'Daar ben ik nu?'	2	2	Participants are frustrated as button 'does not react'
	Goal decomposit	Supporting human memory limitations		Participants do not remember where they to find information in the system, which they have seen before		1	1	Participants go through different screens again before they find the right one
	Users model of the system	User ability to determine what to do first		Participants do not think to look for the patient's care before surgery in the rehabilitation timeline		1	1	Participants first look for a separate screen before looking in time line
				Participants do not look for information on other patients in their own timeline	PA 1: 'Ik zie niet staan hoe ik bij anderen moet kijken, dit is mijn tijdlijn.'	2	2	Participants first look for other pages before looking in timeline
Translation	Content and meaning	Clarity, precision and predictability		Mailbox recognised as care history in terms of caremoments instead of messages	BA 1: 'Op zich wel duidelijk wat er allemaal in staat, maar ik denk toch niet dat dit de zorggeschiedenis is' PA 3: 'This is just a history of the doctors and physio appointments.'	2	2	Participants do not keep looking for another page with an overview of the patient's care
				Tips from physicians not immediately recognised as being tips	PA 2: 'Wat moet ik daar nou mee? Zijn dat tips of wat?	1	0	The participant takes a little longer interpreting this information
				New message to physician sent from 'MyTeam' page is recognised as message to outside of team	PA 3: 'This message is for someone not on the direct team, but someone who might be added to the team. This would depend on who messages.'	1	1	The participant is unsure who the message is sent to
		Completeness and sufficiency of meaning		Description of subjects does not match with professional lingo	OP 1: 'Do you know that with a lot of things, I do not know what it is?'	1	2	The care providers do not understand what the information entails
				Physiotherapist not seen as physician, so not invited in the 'Invite physicians' page	PA 1: 'Moet ik hier nou ook de fysio hebben? Nee, want hier staat artsen.'	1	2	The patient does not add the physiotherapist to his team
	Naming of labels	Cognitive directness		Patients' button interpreted as team	OS 1: 'Ik had gedacht; dat zijn een paar poppetjes bij elkaar, dat zou een team kunnen zijn.'	1	1	The participant only recognises the meaning of button after opening the page
				Button 'Add' is recognised to erase whole timeline	PA 1: 'Ik dach; als ik hierop klik, is alles weg.'	1	1	The participant avoids using this button and looks for other ways of completing the task

Preferences and efficiency issues		Participant wants to add messages by clicking on their own position in timeline instead of the 'Add' button	PA 1: 'Mijn vraag, dan moet ik dus bij mijn eigen blijven.'	1	0	Participant uses other method of adding than the seemingly more obvious
Perceptual issues	Legibility	The @ sign in front of name of physician is not recognised as invite, but as start of message.	PA 3: '@Dr. Versteeg I am confused as to what I am to write here.'	1	1	Participant is comfused but continues task
	Discernability	Timeline not recognised as being timeline because of the lack of time stamps	PA 1: 'Ik zie hier geen tijdslijn in. Als ik nou bij een andere patiënt zou kijken, dan zou ik denken; Na hoeveel maanden is dat?'	1	2	Participant is confused, does not get all information that she desires
Consistency and compliance of task structure		Filters not recognised as filters instead of pages, despite placing inside page and not on top bar		3	2	Participants are confused and take longer to find the desired information
		Search-function within a page recognised as searching the whole system	OP 2: 'Moet ik het hier doen? Hier zoeken.'	1	1	Participant is a little confused
Perceiving objects as they are being manipulated	Discernability	MyTeam button not recognised as being button	OS 1: 'Je zit toch een beetje op die witte dingen te staren'	5	4	Participants do not find the MyTeam page
Preferences and efficiency		Participant wants to add moments from the expected process directly to own process by clicking them		1	1	Does not work, which frustrates the participant
Content and meaning	Cognitive directness	Switches not recognised as being on/off	PA 1: 'Nu deel ik het niet he?'	1	1	Participant is confused until seeing the effect of flipping the switch directly in the screen
		Participants are unsure whether physicians are added to team or another action needs to be undertaken	PA 2: 'Die is nu toegevoegd of niet?'	2	1	Participant is momentarily confused, until clicking again to finish adding
Content and meaning	Layout and grouping	Invite physicians' page not recognised as top part left and right belonging to the same function	PA 1: 'Ik dacht dat het hier een ander stuk was, dat het een tweede deel was.'	1	2	Participant cannot find where to add more physicians
		Patients' page information not recognised as grouped horizontal as opposed to vertical	OP 2: 'Oh maar dat is weer een andere? Een hairdresser?'	1	0	Participant is momentarily confused, but can continue
		Bottom part of 'Invite physicians' page not recognised as permission belonging to specific physicians	PA 2: 'Oh dat is alleen voor de eerste?'	1	0	Participant is momentarily confused, but can continue
Presentation	Perceptual issues	Unclear what teammembers have entered messages	OS 1: 'Als je nu hiernaar kijkt, zie je niet welk vakje je moet openen.'	2	2	Participant is unsure whethere he has new updates

APPENDIX V: CLUSTERING RESULTS STUDY 3

Figure 6: Cooperation between care providers

OP	OS	PA
More cooperation helps all care providers to be on one line		
The OP likes that the specialist will be triggered to think along in the work context		
This system will allow fast communication		The patient likes that this system stimulates more communication between care providers
The OP likes having to ask less questions through this system		
The OP likes the care providers to be able to adjust each other's care in a friendly way		
The Op likes all involved to focus on their own specialisation		
The OP likes that care providers cannot be played out		The patient likes being able to have a physician back him up when another goes too fast
Especially the physio and OP will be able to support each other		
		The patient likes not always having to go to the care providers in person

		The patient likes seeing the care providers communicate amongst each other
		The patient likes that this system allows for less detours
		The patient does not believe the care providers to look into the system
		The patient likes to have all information of the three disciplines combined
		The patient would prefer contact with the nurse physician instead of OS
		The patient wants to send her messages to an assistant first for screening
	The Os likes that physicians can adjust to a non-average recovery process	

Figure 7: Role of OP

OP	OS	PA
The employer should not be able to discuss with other care providers, that is the OP's role	The OS does not want to be involved in contact with the employer to stay impartial	The patient wants to discuss what information the employer receives with the OP
The OP wants to combine this system with his communication to the employer, so he does not have to do double work		
The OP wants clients to always be able to reach him, that's his role		
The OP expects he will need the other's info instead of them needing his		The patient thinks the OP will have most use of the others' info over the system

Figure 8: Role of OS

OP	OS	PA
The OP thinks the OS should be able to provide feedback as fast as possible so he has his information		
		The OS focussed on the physical complaints, but in rehabilitation a personal focus is more important
	Patients can contact the OS for anything, that's his work	
	The OS wants to help adjust the expectations of the OP if needed	
	The OS stands for the needs of the patient	

Figure 9: Role of PA

OP	OS	PA	
		The patient would like to personally discuss with the employer	
	The Os wants the patient can say when he experiences difficulties so the care providers adjust their care	The patient wants to be able to tell the care providers what to focus on	

Figure 10: Information provision OP

OP	OS	PA
The OP makes long term goals to help the patient know what to expect and during the rehabilitation sets up smaller goals		
The OP wants to provide the other care givers with more information about someone's work activities	The OS usually does not know enough details on someone's work to say what he can safely do	
The OP wants to also include details on the patient's work place and possibilities of other work		
The OP wants to focus on possibilities to RTW instead of limitations		
The OP wants to share information on the patient's motivation, expectations and such	The OS wants more insight in the patient's work to know how to interpret the seriousness of his complaints	The OP should provide information on the patient's mental state as well
The OP wants to be able to add standard documents to the patient's file, such as the problem analysis		

The OP wants to share his load profile so the other care providers can pay extra attention to it		
The OP only makes goals towards the next appointment not for the whole recovery		
The OP wants to be able to evaluate and adjust long term goals		

Figure 11: Need for information OP

OP	OS	PA
The OP wants to know when people need support in making workplace adjustments		
The OP wants more information on the surgery as background information		
The OP wants to determine loadability based on possible complications and infections that can influence the duration of recovery		
The OP wants information on allowed activities and possibilities		
When the process stagnates the OP wants to know where the problems could have been, also in the process before surgery		
The OP likes seeing her re-integration plan together with the appointments of others, to know whether it still fits		
In case of a TKP workplace pressure is almost never an issue		
The OP wants to know when a patient no longer has medical limitations, so he should be able to do everything		
The OP would like more medical information		
The OP wants to know more background information about the prosthesis and surgery		

The patient's pain and walking distance allow the OP to give more specific advices		
The OP wants to know whether the OS is content with the result and process		
The OP likes having a shared file		
The OP wants the care providers to provide objective feedback on his re-integration plan		
The OP wants advice on the loadability in terms of activities		
The OP wants to be notified when his plan needs to be adjusted based on activities in the rest of the process		
The OP wants to be able to easily find the reason for slower recovery		
The OP likes to have a standard checklist so he cannot forget anything		
The OS's info is more important in the beginning, the physio is more important later on		
The patient's psychosocial state is important for the loadability		

Figure 12: Information provision OS

OP	OS	PA
The Op wants the OS to tell him his advice and findings		
The OP wants more details on the specialist's treatment	When the patient agrees the OS does not mind sharing his complete patient files	
The OP wants to know more about the specialist's reasoning		
The info of the OS provides an objective assessment to the patient's expectations and experiences		

The OP wants the OS to tell him what the average progress in rehabilitation is so he can base his re-integration plan on it	The OS cannot give a prognosis in the beginning, as nothing is certain yet for long term	
The OP wants the advice of the OS in case of physically demanding work	The OS thinks estimating a person's abilities is very hard	
The OP would like to know whether recovery is as expected		
	The OS can usually estimate what someone is allowed to do	

Figure 13: Need for information OS

OP	OS	PA
	The OS has limited insight in the patient's internal motivations	
	The OS likes to know which patient he should spend more or less time on	
	The OS likes that this system collects all data in one place	
	When a conflict occurs, the OS could get more insight in motivation of the other stakeholders	
	Pain and load related pain are very relevant, as well as relapse and slower recovery	
	Wound problems are very important as they need quick treatment	
	When recovery is harder, the process up to the surgery becomes more important	
	The OS wants to know when a patient can function again as he can redirect the process	
	The OS would like the system to signal problems sooner than usual	
	The OS would like the feedback to be more measurable	
	Especially the opinion of the physio is important for the OS	

Figure 14: Information provision PA

OP	OS	PA
The Op would like the patient to inform him on whether the employer sticks to his advice		
The OP wants to know the patient's expected recovery time		
The patient's experience is important but second place	The Os wants to know whether a patient is content with his care	The patient likes to be able to share his own experiences with the care prov.
The Op wants to know whether the patient feels supported		
The Op wants to know whether the patient has already seen the physiotherapist to start re-integration afterwards		
What the OP needs to do depends on the patient's work and motivation		
The OP needs to know whether someone is motivated and in good shape, to know how recovery will go		
The patient's expectations are also important to know		
Fear would make the patient take longer before he can go back to work		
		The patient would not mind sharing any information and does not discriminate

Figure 15: Need for information PA

OP	OS	PA
		The patient likes to be able to look up more people having the same complaint when it lasts longer
		The patient would like to know how others are doing longer after complete recovery
		The patient wants to be able to ask other patients questions
		The patient would like more factual information about the process
		The patient wants to know the expected rehabilitation progress depending on the work he does
		The patient thinks too much focus is placed on pain instead of discomfort
		The patient wants to know the experiences of others, depending on how long go their surgery was
		The patient does not mind to see an expected progress, as she also knows it is not certain
		The patient would like info about what would be generally prudent to do
		The patient does not want care providers to confront her when recovery is slower than average, as living with the limitations is bad enough
		When recovery is slower, the patient would like to know the reason
		The patient wants more tips in case of fear or discomfort
		The patient likes to know what to expect and when
		The patient wants to know the other patients' mental attitude
		The patient would like to know whether the care providers findings are positive or negative

Figure 16: Fit in work

OP	OS	PA
	The OS expects to need less time for reading files, as it clarifies when something goes wrong	
The Op expects he will have to spend less time documenting		
People will need to be notified of the need of this system for their practice		
	The OS is afraid that the patient will not feel the usual threshhold for asking questions	The patient understands she cannot start asking any questions she thinks of with this system
	The OS likes that information requests can be sent through this system	
	The OS apppreciats that the OP can ask direct questions through the system	
	The OS is afraid this system will possibly generate much extra work	
	The OS does not want to be disturbed by messages of the system, as he would not be able to do his work	

Figure 17: Implementation

OP	OS	PA
The OP expects that in 20 years the patients family background will be important as well		
		The patient would like to see this system in practice
	The OS expects less personal contact due to this system	
	The OS needs time spend on this system to be paid as normal consult time	

APPENDIX W: RESULTS INTERACTION QUALITY ANALYSIS

Kwaliteit	Times chosen	Times chosen C	Times chos	Total
Expertise-based	0	1	0	1
Exciting	0	0	0	0
Guiding	0	0	0	0
Direct	3	0	1	4
Unclear	0	0	0	0
Active	0	1	0	1
Interesting	2	2	0	4
Supportive	3	3	2	8
Involved	2	2	0	4
Time-efficient	0	0	2	2
Insecure	0	0	0	0
Intense	0	0	0	0
Limited	0	0	0	0
Balanced	0	0	0	0
Honest	1	0	0	1
Submissive	0	0	0	0
Passive	0	0	0	0
Frustrating	0	0	0	0
Personal	0	0	0	0
Transparant	3	3	2	8
Invading	0	0	0	0
Useless	0	0	0	0
Circuitous	0	0	0	0
Patient-centric	4	2	1	7
Professional	0	1	1	2
Connected	2	0	0	2
Superficial	0	0	0	0
Friendly	1	0	0	1
Cold	0	0	0	0
Private	0	0	0	0
Simple	0	0	0	0
Comforting	3	0	0	3
Controlled	1	0	1	2