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Perceptions and Preferences of Elderly Low Educated Patients Regarding Patient Portals:

A Qualitative Research.

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Abstract Background: Health care organizations are increasingly designing, developing and implementing patient portals. However, patient portal usage in the Netherlands remains very low. Many researchers found that patient portals yield many positive effects on health, self-management of disease and patient satisfaction. Vulnerable target groups such as elderly patients and patients with limited eHealth or Health skills presumably struggle with patient portal usage. This research aims to gain insight into the attitudes, thoughts, experiences, and preferences of elderly low educated patients regarding patient portals and to explore their perceived benefits, barriers and required preconditioning.

Methods: Semi-structured face-to-face in-depth interviews with (n=15) elderly low educated patients were conducted. The framework method was applied to analyse data from the audio-recordings that were transcribed verbatim (Gale, Heath, Cameron, Rashid & Redwood, 2013). Quantitative data was analysed using basic descriptive statistics (frequency, means) in the program SPSS version 23.

Results: Most participants had no prior knowledge about patient portals, but those with experience were positive. General important benefits were unlimited accessibility, more clarity, and an overview of personal health. Barriers to not using a patient portal were participants' perceptions of their technological skills, lack of faith in technology and perceiving patient portals as impersonal. Participants advise hospitals to make patient portals clear, provide patients simple access, use easy language, more information provision of patient portals, and blended health.

Conclusion: This study found that most elderly low educated patients were unfamiliar with patient portals and thus cannot benefit from them. Blended health care is recommended, a combination of regular health care service and online health care service. Patient portal designers should make patient portals easier to fit the needs and preferences of vulnerable groups such as elderly low educated patients. Future research should focus on a combination of age, education level and illness.

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1. Background

During the next few years, the Dutch government is planning to convert paper medical files into digital medical files, allowing patients to access their medical information online. A medical file contains information about a patient's treatment, such as research results or (referral) letters to a medical specialist. By Dutch law, all patients should have unlimited access to their medical information and should also have the option of changing or deleting the data (Civil Code Book 7, Article 454, 455, 456). Many health care organizations internationally and in the Netherlands are increasingly designing and introducing various versions of a health application in which patients can access their electronic medical files (Vaart, Drossaert, Taal & van de Laar, 2011). These health applications include other accommodating functionalities, such as making an appointment online, direct online access to test results or e-consultation. These online health applications are often referred to as patient portals.

1.1 Explanation of Patient Portals

Patient portals are websites created by health care organizations for their patients, on which they can access their health records. Patient portals offer patients the opportunity to self-manage their health and make use of administrative functions (Otte-Trojel, de Bont, Rundall, & van de Klundert, 2016). Otte-Trojel, de Bont, Rundall, & van de Klundert (2016) found on the official website of the office of the National Coordinator for Health Information Technology in the United States that there are various versions of patient portals depending on the organization's adaption. Basic patient portals enable patients to access medical information such as discharge summaries, medications, immunizations, recent doctor visits, allergies, and lab results (Kruse, Bolton, & Freriks, 2015).''Advanced portals enable patients to request prescription refills, schedule non-urgent appointments, and exchange secure messaging with their provider'' (Kruse, Bolton, & Freriks, 2015).

In general five functionalities could be distinguished of patient portals. These functionalities are (1) scheduling an appointment (Making an appointment) which refers to making non-urgent appointments and changing or cancelling an appointment, (2) viewing medical results (Overview Test Results) which entails the option of online access to test results (e.g. blood test) and (3) overview medication which allows patients to access a list of their medications. The functionality (4) e-consultation which is an online messaging platform that allows the patient to communicate with a health professional, namely a physician or specialist and the functionality (5) questionnaires which give the patient the option to fill out a medical questionnaire online and serves as a patient-reported outcome measure (PROMs) for the health

care organization as it provides the health care organization information on patients' health status (Kotronoulas et al., 2014).

1.2 Patient Portal Usage

The current information available on how many people in the Netherlands use a patient portal is limited. However, general patient portal usage is very low. Several studies explored reasons for the low patient portal usage and found that low self-rated ability to use the internet, overall online behavior and a bad internet connection are important factors (Woods et al., 2017). The exploratory research report on the current use of patient portals in the Netherlands from 2017, conducted by the Dutch organization Nictiz E-health Expertise Center, found the general usage percentage to be very low as it ranged between 5% and 20%, with an average of 12.5% (Pluut, Peters, Sinnige & Schreuder, 2017).

Older adults between the ages of 60 and 79 years have a high percentage of patient portal usage (31-40%) (Pluut, Peters, Sinnige & Schreuder, 2017). Which was an amazing outcome, as most studies found negative associations between age and acceptance, meaning the older individuals are the less likely they would use computer technology (Or & Karsh, 2009). As reported by Irizarry et al. (2017), older adults have positive attitudes towards patient portal usage, which could explain the relatively high patient portal usage percentage found by the exploratory research from the Nictiz E-health Expertise Center.

The literature shows that older adults have a relatively high percentage of patient portal usage and despite being less likely to accept computer technology have an interest in using patient portals. These contradictory results urge the need for more research on older adults regarding patient portal usage, especially because patient portal usage presumably has many positive effects and older patients should also be able to benefit from that.

1.3 Effects of Patient Portal Usage

Patient portals are supposedly effective in various ways, and the expectations of the positive effect of patient portal usage are high. Literature mentions various positive effects, such as improved health outcomes, ''clinical outcomes, patient adherence, patient-provider communication, patient empowerment, and patient satisfaction with health services'' (Goldzweig et al., 2013; Kruse, Bolton, & Freriks, 2015; Otte-Trojel, de Bont, Rundall & van de Klundert, 2014).

However, the findings for health outcomes were mixed. One study found no evidence that patient portals improve health outcomes, costs, or motivate utilization (Goldzweig et al., 2013). The study found patients' attitudes, about home access to their patient portals, to be positive, although it did not yield any positive effects on medical or health outcomes

(Goldzweig et al., 2013). On the contrary, a different literature review found advancements in self-management, treatment adherence, disease understanding, preventative medicine, and a reduction of office visits (Kruse, Bolton, & Freriks, 2015).

However, patient portal usage was found to not improve hospital outcomes. For example, Dumitrascu et al. (2018) found that the use of the patient portals during hospitalization in the inpatient setting did not improve hospital outcomes 30-day readmissions, inpatient mortality, and 30-day mortality. Even though patients portals produce many positive effects, some target groups might have difficulties using them. Many studies, therefore, focused not only on the effects of patient portal usage but also on vulnerable target groups such as low health literate patients.

1.4 Health Literacy and eHealth Literacy

Multiple health care application studies have focused on examining the role of health or eHealth literacy concerning patient portal usage. Health literacy or functional health literacy as described by Schillinger et al. (2003) refers to ‘’a person’s capacity to function in a health care setting as determined by literacy (comprehension of written health care materials) and numeracy (ability to understand and act on numerical health care instructions)’’. Ehealth is defined by Norman & Skinner (2006) as ‘’the ability to seek, find, understand and appraise relevant health information from electronic sources and apply the knowledge gained to addressing or solving a health problem’’. According to Roter, Rude & Comings (1998) years of education and limited education are predictors in literacy level. Limited education especially accounts for a big part in poor literacy in the elderly (Roter, Rude & Comings, 1998).

Current patient portals are often unusable for patients with limited health literacy and numeracy skills (Alpert et al., 2017; Irizarry, DeVito Dabbs, & Curran, 2015). Patients with limited eHealth or health literacy have limited knowledge of self-management of disease, limited health-promoting behaviours and weaker health status than patients with high eHealth or health literacy (Norman & Skinner, 2006).

Only a few studies have found eHealth or health literacy skills insignificant regarding patient portal usage. For example, in a study conducted by van der Vaart et al. (2011), in which they examined variables such as health literacy levels with the intention to use various online support services on a hospital-based Interactive Health Application (IHCA), they found that the overall intention to use the ‘’IHCA did not correlate with any of the socio-demographics, nor with any of the health literacy scales’’.

However, most researchers found the contrary. For example, Sarkar et al. (2010) studied patient portals for patients with diabetes and found that patients with limited health literacy had

a higher reported response of never signing on to a patient portal compared to patients with high health literacy skills. Hoogenbosch et al. (2018) found in a cross-sectional study of outpatient departments that not only limited eHealth literacy skills influence portal usage but also chronic illness, ‘’effort expectancy (ease of use and knowledge and skills related to portal use) and performance expectancy (perceived usefulness)’’ (p. 1). In addition, van der Vaart, Drossaert, de Heus, Taal, & van de Laar (2013) found that many patients have insufficient skills to properly use various functionalities of the internet, for example, ‘’interactive applications such as peer support forums, online consults, and insight into electronic medical records’’.

Health and eHealth literacy skills are important factors regarding patient portal usage. Although studies have examined the role of age and the role of eHealth or health literacy regarding patient portal usage separately, as far as we know there are no previous studies that have combined both these variables. And yet it is important to have these insights because elderly patients with limited eHealth or health literacy skills are a vulnerable target group that otherwise will not benefit from the many positive effects of patient portal usage.

1.5 Conclusion

In conclusion, health care providers are increasingly developing health care applications such as patient portals, there are many positive effects of patient portal usage, but the actual usage is low. Also, older adults and patients with low eHealth or health literacy have more difficulties using patient portals and therefore cannot benefit from them. Therefore, it is very important to explore their attitudes, thoughts, experiences, and preferences. As it is impossible to define low eHealth or health literacy without testing it, and limited education accounts for a big part in poor literacy in the elderly, this research will focus on elderly low educated patients.

1.6 Research Aim and Research Question

The ultimate purpose is to better patient portals for all patients, which requires insight into the attitudes, thoughts, experiences, and preferences of our most vulnerable patients. This research aims to answer the main research question (1) ‘What are the general perceived benefits, barriers and required preconditioning of low educated elderly patients regarding the general format and content of patient portals?’. And sub-question (1a) ‘What are the perceived benefits, barriers and required preconditioning of low educated elderly patients regarding potential functionalities?’.

2. Method

2.1 Design

Data was collected through open-ended face-to-face semi-structured interviews with the fifteen participants. This data collection method was used to explore the participants systematically and comprehensibly and keep the focus on the aim of the interviews (Jamshed, 2014). In collaboration with Pharos the Dutch Centre of Expertise on Health Disparities, the University of Twente, and the St. Antonius Hospital in Utrecht, IJsselland Hospital in Capelle aan den IJssel and the Senior Meeting Spot Organization (Senioren ontmoetingsplek) which are all located in the Netherlands.

2.2 Ethics

Participants were informed about their right to withdraw from the interview at any time, personal data such as names are not disclosed or shared with third parties or in the transcriptions of the interviews. Permission for voice recording was obtained and participants were informed that the recordings (a mobile personal phone was used) will be immediately deleted after transcription. The transcriptions and informed consent forms will be securely stored on a coded USB-stick and provided to the University of Twente. Informed consent forms were explained before beginning the interviews and all were signed. The Ethics Committee of the University of Twente (Behavioural, Management, and Social Sciences) provided ethical approval for this interview research.

2.2 Participants and Procedure

Participants were only included on bases of the inclusion criteria (being low educated, speaking Dutch and being 50 years or older) while the exclusion criteria were, having a bachelor's degree or more, being younger than 50 years or insufficient in Dutch. The interviews and interview material were all conducted and written in Dutch. Fifteen adults both male and female between the ages of 56 and 77, with a lower educational background were approached by the researcher through purposeful sampling namely homogeneous sampling which was used to identify and select candidates who share similar traits or specific characteristics (Etikan, Musa, & Alkassim, 2016).

Eight participants were recruited from the Senior Meeting Point in Doetinchem and seven through the researcher's own network. The participants recruited from the Senior Meeting Spot were also interviewed at the location, while participants recruited from the researcher's network were interviewed at their homes. The group coordinator at the Senior Meeting Spot was first approached by an e-mail through the researcher's external supervisor at

Pharos. The appointment was arranged to introduce the researcher and to explain the aim of the research and the design of the interviews.

During the first meeting with the coordinator of the Senior Meeting Spot, the aim of the research and interviews were disclosed, the interview schema was elaborated, the inclusion criteria were discussed and the first participants were recruited. Participants who agreed to the interviews were informed about the aim of the interview and given examples of questions. The seven participants that were recruited from the researcher's own network were approached in person or through a middle person who received a hard-copy of the invitation especially designed to introduce the research and interview as can be seen in Appendix 1. Participants who agreed to do the interview reported back to the researcher or the middle person by phone or in-person and appointments for the interviews were made.

Before the interviews were conducted two pilot interviews were done to test the interview scheme. One of the two pilot test interviews was excluded from the interviews as the participant did not want to sign the informed consent form, due to personal reasons. The other participant of the pilot test was included in the research as the only main difference between the pilot test interview and the final version of the interview were the self-made examples of the functionalities e-consultation (e-consult) and questionnaires (Vragenlijst), and as this particular participant was familiar with patient portals, her judgement could be considered valid even without the self-made examples of the patient portal functionalities that were later included in the final version of the PowerPoint presentation and therefore there was no reason to exclude her from this research.

Appointments for the interviews were made between December 5^{th,} 2018 and January 14^{th,} 2019. During every interview with a new participant, the interview started with an introduction of the researcher, an explanation of the interview process, the reading of the interview scheme introduction and the reading and signing of the informed consent form as can be seen in Appendix 2. The introduction of the interview scheme also consisted of the introduction of the researcher, the aim of the interview and emphasizing the importance of the participants' opinions. The introduction also contained the mentioning of privacy and the estimated duration of the interview, which was 60 minutes and the estimated duration of each of the five parts, which was 10 minutes. The interviews were transcribed in a Microsoft WORD document.

2.3 Instruments

The overall structure of the interview scheme started with general questions to gather participants' demographic characteristics, general thoughts, and experiences with patient portals. Secondly, more specific questions were asked about each functionality separately and lastly, participants were asked to choose a favourite functionality and to give general advice on patient portal improvements. Also, a PowerPoint presentation was shown to serve as an example because it was presumed that it would be difficult for participants that are unfamiliar with patient portals to give their opinion without an example.

The interview scheme was based upon the literature and developed in cooperation with the supervisors. Also by a review of the literature and by attending an independent study by Pharos about patient portals in which participants were interviewed face-to-face via semi-structured interviews. Also, by the feedback sessions with the supervisor at the University of Twente and external supervisor at Pharos, and lastly through information gained by pilot testing the interview material. While developing the interview scheme the focus was on the importance of using clear and simple Dutch language in consideration of the participants' assumed limited literacy skills (Creswell & Poth, 2017).

2.3.1 Characteristics of participants.

General information about the participants was gathered through the first part of the interview scheme. The interview thus began with seven questions concerning age, education level, current and former place of residence, frequency of computer use, self-rated computer skills and self-rated knowledge about patient portals.

2.3.2 Experience with patient portals.

The interview then continued with nine follow-up questions to gain the first insight into the participants' perception of patient portals. The participants were asked about their thoughts and experiences with patient portals. The questions are;

1. Have you ever used a patient portal?
2. If not, would you use it?
3. Do you know people in your social network who use a patient portal?
4. Do you see any benefits of using a patient portal?
5. If not, which disadvantages do you see?

2.3.3 Perception of the five functionalities.

Participants were informed that they will be shown a few different functionalities of existing (Sint Antonius hospital in Utrecht and IJsselland hospital in Capelle aan de IJssel) and non-existing (self-made) patient portals as an example and that the five functionalities were i)

Making Appointments, ii) Overview Results, iii) Overview of Medication, iv) E-consult, and v) Questionnaire. Furthermore, the questions at every functionality were similar in context but with minor modifications in accordance with the functionality's specific characteristics.

The questions were aimed at exploring the current use of functions, experiences with online use of the functions and thoughts about the functions. Also, the participants were asked at the end of every functionality, to name the advantages and disadvantages of using the website compared to the status quo. Then the participants were shown an example of the functionality as seen in Figure 1, Figure 2 and Appendix 3 followed by seven questions about the participants' thoughts about the presentation, the overall look of the example, and their interest in using the functionality and whether getting help in using the functionality would make a difference.

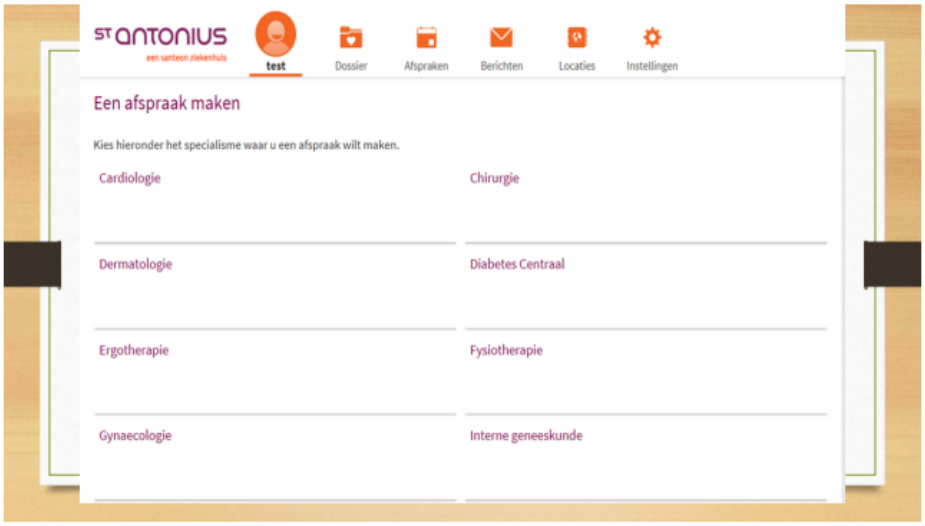

Figure 1. Example of the functionality Making Appointments.

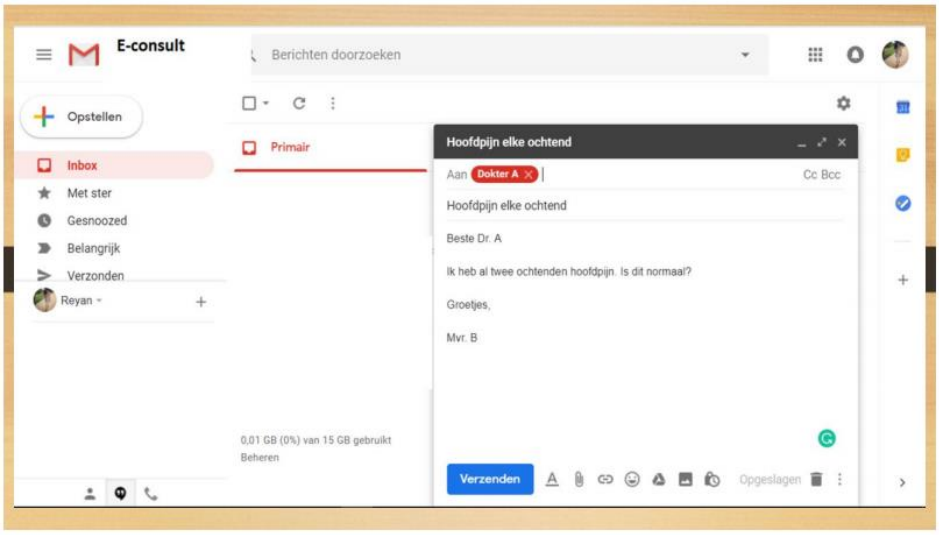

Figure 2. Example of the functionality E-Consultation.

2.3.4 Preferences and advice.

In conclusion, two more questions were asked concerning the participants' favourite functionality and their advice to a hospital. The interviews were then ended by thanking the participants for their participation and giving them the e-mail address and telephone number of the researcher.

2.4 Data Analysis

The framework method was used to analyse data obtained from fifteen face-to-face semi-structured interviews (Gale, Heath, Cameron, Rashid & Redwood, 2013). The audio-recordings were transcribed verbatim and transcriptions were stored in Microsoft Word. Quantitative data was analysed using basic descriptive statistics (frequency, means) in the program SPSS version 23. The analysis of the interviews began with (1) transcription process which entailed the transcribing of audio-recording verbatim and provided initial familiarization with the interview content. Secondly, (2) the text was read in detail multiple times to get familiar with the content and understand the possible categories. In the process, interesting and relevant words and phrases were highlighted.

The transcriptions were intensively read again before coding. Coding (3) began by selecting categories and identifying two levels. Firstly the general levels, following the research aim, which resulted in sorting the data into 'benefits', 'barriers' and 'precondition', per functionality. The second level (4) was establishing specific categories (in vivo coding) that emerged after reading the data multiple times and ultimately making categories (codes).

The categories have been revised or changed multiple times after discussion with the supervisors, before reaching a satisfying result and the final codes (5). Within each category the focal points were, searching for contradictory points of view and new insight (Thomas, 2006). Finally (6) the data was charted and segments for the 'Results section' were chosen based on their content, namely if they were reflective of other interview answers (Gale, Heath, Cameron, Rashid & Redwood, 2013).

3. Results

3.1 Characteristics of Participants (demographics)

Participants' characteristics are displayed in Table 1. The participants were an overall homogenous group, predominately female. Most participants grew up and live in different cities in the province of Gelderland in the Netherlands. Most participants reported that their highest attained educational level was a high school diploma. Self-reported use of a computer or a tablet

was high while self-reported familiarity with patient portals before the interviews was low, meaning most participants had never heard of a patient portal before this research.

Table 1. *Participants' Demographic Information, Gender, Age, Place of Residence, Place of Childhood, Educational Level, Self-reported use of Computer or Tablet and Self-reported familiarity with patient portals.*

Characteristic	(n=15)
Gender	
Male	2
Female	13
Age	
Mean (SD)	70.6 (5.8)
Range	56-77
Place of Residence	
Didam	1
Doetinchem	11
Hengelo Gelderland	2
Zelhem	1
Place of Childhood	
Province Gelderland (NL)	11
The Netherlands	3
Foreign Country	1
Education Level	
No Elementary School	1
Elementary School	4
High school	8
More	2
Self-reported use of a Computer or Tablet	
Yes	11
No	4
Self-reported familiarity with patient portals	
Yes	6
No	9

Self-reported frequency of use per week and online activities on a computer or tablet are shown in Table 2. Four participants reported never using a computer or a tablet, however, it is important to note that from the four participants that indicating never using a computer or tablet, one participant reported, using a mobile phone before and another one reported that she used to Skype (video chatting application). The remaining participants reported weekly or daily computer or tablet usage. Most participants reported using a computer or a tablet for 'looking up something' such as recipes or information about an (unspecified) topic. Other computer activities named were, e-mailing, playing games, shopping, looking at social media, and

Skyping. Lastly, other online activities reported were internet banking, photo-shopping pictures, watching series, and listening to music. Although most participants owned or had access to a computer, only 4 (27%) used it on a daily base.

Table 2. *Participants self-reported frequency of use of a computer or tablet and list of the type of activities.*

Characteristic	(n=15)
Use of a computer or tablet	
Never	4
Sometimes	6
Every week	1
Every day	4
Type of activities' on a computer or tablet	
Looking up something	8
Email	5
Games	3
Shopping	3
Social media	3
Skype	2
Internet banking	2
Photo-shopping	1
Listening to music	1
Watching series	1

3.2 Experience with Patient Portals

Only a few participants indicated that they have ever used a patient portal (3/15) and most (11/15) have never used a patient portal before. The participants who had used a patient portal before considered it very useful.

'Yes, I use it very often at home, yes at least before I have an appointment or afterward. I find it very handy and useful. It's just important because then you can see everything at home. So you can also, show it to others like my husband.' [Female, age 74]

Participants who do not use a patient portal were asked if they would use one, and only (3/15) said yes, (5/15) said maybe, and (4/15) said no. Reasons for wanting to use a patient portal were being curious about it or perceiving it as an useful tool for health reasons.

'Yes. I want to know that. I am very curious, I always want to know everything about health.' [Female, age 62]

Reasons given for never wanting to use a patient portal were viewing the extensive use of computers as not human-friendly, being afraid of doing something wrong such as by accident deleting something, not being good with computers and seeing patient portal use as unnecessary.

> *'Absolutely not. Absolutely nothing for me. I do not feel like it anyway. No, I am not someone for it (it is not for me). Everything has to be done with the computer nowadays and that cannot be all right? In the future, you will only see robots here and nothing is anymore (normal), why can it not be more human? Just mark my words, it will soon be just like that, nowhere anymore human contact, actually it is so everywhere [researcher said, maybe people find it easy] easy, easy. I do not know. I do not want it.' [Female, age 75]*

Most participants were uncertain about if people from their social network were familiar with patient portals or not (11/15) but some assumed their children or others might be using it. Only (3/15) participants knew someone for certain who uses a patient portal. One participant was accidentally not asked that question during the interview. Participants perceived both advantages and disadvantages of using a patient portal. Most participants saw an advantage of using a patient portal (11/15). Advantages named were; communication with doctors and a better understanding of one's disease, making online appointments, communication between doctors and between hospitals, easier access everywhere, fewer people in the hospital or saw advantages not for them personally but perceived patient portals as useful for others such as, doctors or younger people.

> *'Absolutely, well that my doctor can see exactly what I've done in the hospital and what has been done and that my specialists can see what my doctor has prescribed and done, yes.[Researcher asked: Do you see the advantage that you can do it yourself?] Yes, maybe not, it is not necessary for me, It is much more important for my doctor and specialist to know exactly how, and what, for me, I know that.' [Male, age 76]*

Half of the participants (6/15) saw disadvantages, and the other half (6/15) did not perceive disadvantages, and (3/15) were not asked this question. Disadvantages named were perceiving their own ability to use computers as low, perceiving patient portals as enabling people's addictive behaviour, doctors being too busy, all the information remaining online and privacy concerns.

> *'What I just said about the privacy and that I'm not super with computers so then I'm not going to mess around in the patient portal.' [Female, age 74]*

In sum, the initial perception of patient portals was negative, and most participants were unfamiliar with patient portals but could see advantages of patient portal usage.

3.3 Perception of the Five Functionalities

The participants were generally mixed about the five functionalities, Making an Appointment**,** Overview Test Results, Overview Medication, E-Consultation, and Questionnaires.

3.3.1 Making appointments.

General perceptions of the opportunity to make online appointments were mixed. The participants were asked to give their opinion on four different options, 'choosing a doctor' 'choosing a time and a day' 'changing or making an appointment' and 'canceling an appointment'. The option 'choosing a time and a day' was the least popular as only six out of fifteen participants had a positive opinion about it, versus (9/15) participants who found it an unnecessary option. The option of 'choosing a doctor' was the most popular option as most participants (9/15) found it a good or important idea versus only (6/15) participants who perceived the option as unnecessary. Half of the participants perceived the options 'changing or making an appointment' and 'canceling an appointment' as positive and the other half had a negative opinion. Most participants call the hospital on the phone to make an appointment (11/15), others make an appointment at the hospital (2/15) or receive an appointment letter at home (2/15). Table 3 shows an overview of the results divided into positive perceptions, negative perceptions, and preconditions.

General positive aspects of the functionality making appointments were the overall easiness of use, faster access without long queues, phone calls become unnecessary and the benefit of direct personal access. Some participants perceived technology as pleasant and believed in their computer skills. The positive perceptions varied per option. The option of choosing a doctor was considered a good or important idea because some participants indicated wanting to have a competent doctor. The options of changing/making/canceling an appointment were considered good or handy despite some participants indicating that they do not have the computer skills. Furthermore, examples shown were considered good, understandable and easy. The overall look and format of a patient portal were deemed important as almost all participants chose a favorite patient portal (St. Antonius Hospital) over another (IJsselland Hospital) based on the overall look being clearer, better understandable and having a bigger font size. *'Yes, I think this is better. (St. Antonius) Yes certainly. Yes, much clearer, the other one is so small and the names of those doctors are so strange.' [Female, age 67]*.

General negative perceptions were that some participants' belief in own ability or skills was low, seeing no benefits in using a patient portal and finding the current way easier. For example, one participant said '*Well, I will not start with that (using a website or patient portal) because I have to learn all that, and I cannot learn that very well.' [Female, age 72]*. Furthermore, some participants perceived patient portals as impersonal and exclusive of some groups such as elderly people. For example, one participant said, *'Yes, well sometimes people do not figure out the internet especially older people or some people do not have a computer either. Yes, so if it has to be on that website they can no longer use this functionality.' [Female, age 70]*. Also, a few participants indicated the lack of faith in the actual security and privacy on a patient portal. After seeing an example of this functionality some participants found the content and overall look of the functionality, unclear, hard to learn and difficult to understand. Furthermore, a few participants said it could be a good functionality for others but they themselves would not use it or do not need it. Some participants also stated preconditions for future use such as the level of easiness and a calendar feature to serve as a quick overview. Also, some indicated they would only use this functionality when there is no other option available.

Table 3. *Perceptions of participants on the functionality 'Making Appointments' (n=15)*

Functionality	Positive perceptions	Negative perceptions	Preconditions
Making Appointments			
General	- Good/handy - Faster/easier - Personal access to options - No queue - If you don't like to use the phone	- I cannot do it - The current way is easier - It will go wrong if you don't know how to use it - People without a computer are excluded - It is impersonal - No security of privacy on a website	
Choosing a doctor	- Important/good - Not necessary, but important - Especially in relation to a good doctor: Confidential, Accessible, Friendly	- Not necessary because it is already possible - No choice possible (in specific situations)	
Make/change/cancel	- Good/handy but: I would never use it, not possible in my situation, I don't know how	- I cannot do it - Not necessary because the current method is good - You will not receive human contact via the website, prefer in person - No faith in technology - More effort than benefit - It is easier not to do it via the website	
Perception on example patient portal	- Good/understandable/easy/important - The presentation of a patient portal is important - Immediate access - Good but: incomprehensible to me, I need more time to understand - Yes better than waiting on the phone	- Poor/unclear - I will not use it/ I do not need it - Hard to learn/understand - Good for others, but not for me	- Only use if it is easy - If there is no other way - If there is a calendar

3.3.2 Overview test results.

General findings on the option of online viewing test results were that most participants (9/15) had positive perceptions, were interested or see advantages in seeing a test result on a website while six participants shared a negative perception and expressed concerns that they would find it too difficult to understand. Most participants (12/15) receive their test results solely from a general practitioner or a specialist, while only three participants receive their test results from both a medical professional and patient portal. Table 4 shows an overview of the results on the functionality 'Overview Test Results' divided into positive perceptions, negative perceptions, and preconditions.

General positive perceptions on the functionality of viewing test results online were the possibility of seeing and/or showing the test results (to others such as family), personal interest in the information, avoiding wasting printing paper and avoiding extra doctor visits. Furthermore, some participants stated that viewing a result at home could be beneficial if they could understand the test results. After seeing an example a few participants found that this functionality looked good and the content was understandable. Some participants that perceived the functionality as incomprehensible and impersonal were still positive about the layout of the functionality.

Table 4. *Perceptions of participants on the functionality 'Overview Test Results' (n=15)*

Functionality	Positive perceptions	Negative perceptions	Preconditions
Overview Test Results			
General	- Good/handy - Handy to show to "third parties" - Personal interest - No wastage of printing paper - No doctor's visit required - Good because I understand (my) personal illness - Good but I don't understand the content - Check if results are good	- I do not understand it, A doctor is better because I don't understand it myself, (incompressible) - Not necessary because the doctor will give you the test results (unnecessary) - A doctor knows better, Prefer to hear from a doctor (trust) - Impersonal - Provides tension, Confusing	- Provided it is understandable - Provided only in combination with a doctor's explanation - Provided that it is only used with less serious results - Provided it is explained in simple language
Perception on example patient portal	- Good - Already in use/I will use it,/If I could do it - Good and I understand - Good but impersonal - Good but don't understand it so well	- Incomprehensible - I cannot use it/not able to - I will not use it, For others not for me - Different way is unnecessary - Impersonal - Prefer to view results alone	- Good but would be even better as a Mobile Application - Good but only with an explanation/information

General negative perceptions were that the functionality was not understandable and unnecessary because a medical professional was expected to be more knowledgeable than a patient portal. In addition, some participants found it impersonal to receive results through a patient portal and especially if the result would contain bad news, as a patient could be shocked or confused by the content. For example, one participant said, '*I cannot imagine what the advantage could be, that is only confusing is it not? I think this is a big disadvantage, because*

imagine you see your test results but you think they mean one thing and then you panic or something and then it's a different story at the end. I do not think that's a good thing.' [Female, age 74]. Negative perceptions before and after seeing an example of this functionality were similar. The sole difference was that a few participants expressed that they find the content incomprehensible, rated their personal skills and abilities as low and stated even with help from others they would not use this functionality.

Some participants stated various preconditions for using this functionality. Participants expressed that test results should be comprehensible, be explained in simple language, be available only in combination with a doctor's explanation and only in combination with an elaborate explanation or information feature button. For example, one participant said, '*Yes you can see it at home whenever you want. But not just that. Yes, I think you should also get an explanation and not just (a test result) because maybe you do not understand the doctor's language (Jargon).' [Female, age 74]*. Furthermore, a few participants believe that only less serious (not life-threatening) test results should be displayed and lastly, one participant indicated that she would only use this functionality if it is available as a Mobile phone Application.

3.3.3 Overview medication.

General findings on the possibility of viewing medication online were that participants' opinions were divided on this functionality, five participants were positive, six were negative and four were uncertain. Only two participants ever used a website to see an overview of their medication while most participants never used a website before. Most participants (11/15) use medication and (11/15) view their medication on a hardcopy list or go to the pharmacy to get a (hardcopy) list. One participant goes to the general practitioner, two participants use a patient portal or a website and one participant stated it is not necessary to have a list. Table 5 shows an overview of the results on the functionality 'Overview Medication' divided into positive perceptions, negative perceptions, and preconditions, General positive aspects of the functionality overview medication were that most participants perceive this functionality as useful in keeping track of their medicine, find the option of quickly accessing their medication list handy or could imagine others using it to keep track of their medication. A positive perception after seeing an example of this functionality was that some participants stated that the content looked easy and useful.

Table 5. *Perceptions of participants on the functionality 'Overview Medication' (n=15)*

Functionality	Positive perceptions	Negative perceptions	Preconditions
Overview Medication			
General	- Good/handy - Good/handy but not necessary because know it myself	- Not necessary, I already know/rely on current professional (paper list of medicines) - The information may be incorrect/ not properly kept or updated, If you cannot see information or medicines can go together, information on package leaflet is contradictory - The patient portal might not work, difficult to use - Too much information is not good - The professional is more reliable	- If I could do it/If you can do it, it's handy - If you have (many) medication/ - If you forget/lose it - You can quickly look at /everywhere
Perception on example patient portal	- Good/clear (Medications are clearly indicated, How often you have to take it, No difficult words) - Good but more information should be accessible - Useful/ If I could do it myself I would use it, I think my hospital should have it - Useful but now not needed	- Not necessary - Not necessary because current way is good - Not necessary because not many medicines - Not personal - Not usable - My hospital did not update content consistently - Do not understand it	- Good provided that you know your medication yourself - Good but not at the expense of the current situation - Good but it must be clear and not difficult - If it is really necessary - With someone's help - If I can do it on my mobile phone

General negative aspects were not needing the functionality, having no faith in the accuracy of the information and having no faith in the technical functionality of the patient portal thus the functionality. For example, one participant said, '*Yes, yes well what I think is not good it is not updated well, because everything stays on it. I do not think that is good. [Female, age 69]'.* Also, this functionality was perceived as too difficult to use and some participants stated that too much health information could be stressful. Furthermore, a few participants expressed having more faith in a health professional than in a patient portal and perceived the current way (paper list of medicines) as better. For example, one participant said, '*I would not do it because it can also be wrong for example, so I'd rather ask the pharmacist.' [Female, age 74]*. After seeing an example of this functionality some participants stated that it is especially unnecessary for participants who do not use (a lot of) medication. Furthermore, some participants found the example of this functionality impersonal, incomprehensible and participants who have used this functionality before feel that it is not updated consistently.

Some participants had a few preconditions such as a need for access to additional information, the option of using the functionality on a mobile phone and stated that (professional) assistance to use the functionality should be available. Some participants also indicated that usefulness of the functionality would be higher when patients have pre-knowledge about their medication, the current way of accessing medication does not disappear, there are no other options to get an overview of medication and the functionality must be clear and easy to use. For example, one participant said, '*Yes also handy, if you have medication, yes then it is useful on a website right? You forget nothing, you know when to fill it, yes such*

things.' [Female, age 67]. A few participants also indicated other preconditions, such as their level of computer skills and the amount (a lot of) of medication.

3.3.4 E-Consultation.

General findings on online consultation were that none of the participants knew or ever saw the word E-consult before this research. Half of the participants (8/15) were positive about this functionality while the other half expressed negative views (7/15). Most participants with a health question (12/15) ask a general practitioner or a health professional in person, or (1/15) look on the internet, or (1/15) call their doctor or hospital, or (1/15) ask their doctor in person or send an email. Most participants have never asked a question on a website but did look up health-related content (14/15) and only one participant has asked a health-related question online. Table 6 shows an overview of the results on the functionality 'E-consultation' divided into positive perceptions, negative perceptions, and preconditions.

Table 6. *Perceptions of participants on the function 'E-Consultation' (n=15)*

Function	Positive perceptions	Negative perceptions	Preconditions
E-Consultation			
General	- Good for when you have a question but no time/forget - Certainty of correct answer - Faster answer than by telephone - You don't have to make an appointment - Being able to calmly think about the question	- I would not do it/I don't see any benefits, Non-important function - Difficult, Hard to use (I can't) - Not understanding subject language/information - Hard to understand (what the question is for doctors/ what a patients means to say) - No certainty of a fast answer (busy doctors), Not an immediate answer - High workload doctors, Bad for the doctors - I think it's better to go to the doctor - No trust via the internet, rather in person, Impersonal,You only get wrong information, - Unreliable, Chance of wrong answer - Concerns about people who can't use it	- Precondition receiving an answer within 48 hours , only if "fast" answer - Good idea but only if function actually works - If I could, but not for every question - Good, but only by telephone - Only non-important information
Perception on example patient portal	Good but not for me - Good because the example is clear - Good because the idea (asking the doctor questions with e-consultation) is good - It looks good but I don't understand It - It looks good and I find it easy to understand -	- Not good, Unnecessary, Will not use - I prefer not to ask help - It looks easy but a bad idea - It is too difficult, I do not understand, Don't use it because I can't - Doctors will not want to do this - Not good, for the workload - Do not use it because it is impersonal - More reliable from the doctor	- If you can do it it's handy - Only if it looks like an e-mail - Provided that you receive a guaranteed answer within a certain time - If someone helps, If I could do it - Someone can help me, so for small things I would ask

General positive perceptions on the functionality E-consultation were the opportunity of asking questions after an appointment and being able to calmly think about possible questions as one participant indicated *'Yes, you can calmly think about it. Yes, because then you know exactly what to ask.' [Female, age 70]*. Further positive perceptions were the belief of receiving correct answers or information, having faster contact with a health professional than by

telephone and the elimination of the need to make an appointment with a doctor for insignificant questions. After the example was shown half of the participants perceived the functionality as a good idea and found the example clear and understandable. However, some participants found this functionality both a good idea and difficult to understand.

General negative findings were that some participants did not see any benefits, found the functionality not important, difficult to use and difficult to understand the language of information. Also, some participants stated that there would be no certainty of a fast or immediate answer and felt it would be better to go to a doctor. Furthermore, some participants expressed a lack of trust in information on the internet, prefer receiving consultation in person and found this functionality impersonal. For example, one participant said, *'That is not a good idea, you will only get wrong information so I cannot think of any benefits.' [Female, age 74]*. Also, some participants shared their concerns for groups that would not be able to use this functionality. Other participants focused on their perception of how they think health professionals would view this functionality. Some participants thought that health professionals would have a difficult time understanding the patients' questions and that the workload for health professionals (doctors) would become higher. General preconditions were that a few participants' were only interested in this functionality if they would receive an answer within 48 hours or only if it would be guaranteed that the functionality actually works or only use if they have the option of calling the health professional on the telephone. Also, participants indicated that they would only use it for specific questions such as non-important (life-threatening) information.

3.3.5 Questionnaires.

General perceptions on the possibility of filling in online questionnaires were that most participants (11/15) thought it was a good idea to have the option of filling in the questionnaire at home while only four participants perceived it as a bad idea. Half of the participants (7/15) completed a questionnaire or answered questions in the hospital, while only (4/15) participants indicated never filling in a questionnaire in the past. Two participants completed a questionnaire via a website or a patient portal (1/15) or a combination of in the hospital and via a website (1/15). Table 7 shows an overview of the results on the functionality 'Questionnaires' divided into positive perceptions, negative perceptions, and preconditions.

General positive perceptions on the functionality filling out questionnaires on a patient portal were the benefit of having access to this functionality whenever needed and the privacy of answering questionnaires at home. Some participants were also positive about the elimination of needing to mail the questionnaire or go back to the hospital to correct possible

mistakes. Another positive perception was that online questionnaires were perceived to give a better overview (than paper version questionnaires), *'Yes then you can follow it like this point by point. Then you have an overview. Yes.' [Male, age 76]*. After seeing an example of this functionality some participants found it a good format, easy to understand and liked the font size. Furthermore, a few participants found it especially beneficial to use an online questionnaire if the content of the questionnaire would be long. Lastly, some participants liked the functionality but indicated that they would not use it themselves.

Table 7. *Perceptions of participants on the functionality 'Questionnaires' (n=15)*

Functionality	Positive perceptions	Negative perceptions	Preconditions
Questionnaires			
General	- Good, I already do - Fill the questionnaire out whenever you want, Enter at your own pace, If you are sick, you can enter it at home, It is quiet at home - Privacy at home - Good to follow - You don't have to send anything (no mail)/or go back, You don't have to go to the doctor if you understand	- I cannot do it, I do not want that, It is good for others but not for me, - It takes me more time, Difficulty, Hard to understand - Current way is good enough, hospital is better because otherwise you will do double work, No help at home with possible questions, If you can't figure it out, you still have to ask (duplication) - No disadvantages for me but for others language used (difficult words	- If the questionnaire is long - If the questionnaire is easy, if I understand, Nice from home if the questionnaire is not complex - If you live far from the hospital
Perception on example patient portal	Good, I already use - It, I would use it, Can do it yourself, Good that it exists (for others), - Good but not for me - Good especially if the questionnaire is long - Easy to understand, - Great big letters - I think it's good in this format	- Help available but would not use it It is too difficult/much - Does not interest me	- If it is necessary - If I need it and the hospital explains how to do it - Think the hospital should explain it and then use it - Help available and would use it with help

Perceived barriers or negative perceptions about this functionality were not wanting to use it, finding it too difficult, indicating that the language used is difficult and perceiving the current way as sufficient enough. For example, one participant said, '*Well an advantage, I only see disadvantages. Yes, if it contains difficult things, then you still enter it incorrectly? [Female, age 75]'.* Also, filling in questionnaire in a hospital was considered better than at home because most participants have no help at home and also have no way of being certain they filled in the correct answers. For example, one participant said, '*No in the hospital that is much better you can immediately pass it on and then you are immediately off then you do not have to do it at home and then they do go into the hospital after asking and walking.' [Male, age 74]*. After seeing the example of this functionality some participants expressed their lack of interest in the functionality and found it too difficult. Also, some participants stated that even with help from others to navigate through this functionality they would still not be interested in using it.

Several preconditions for using this functionality were that a few participants would only use this functionality if the questionnaire would be too long or only if the questionnaire would be easy to understand and the current way would not be possible anymore.

3.4 Preferences and Advice

Participants named the functionality Overview Medication six times as their most favourite functionality as they stated that it was useful when they might have a lot of medication (2/15), or stated no reason (2/15), or simply stated it is useful (1/15) or useful and clear(1/15). Followed by the functionality Questionnaire (5 times), as one participant stated that she found it understandable, and two stated no reason, and one stated she does not like to answer questions in the hospital, and one stated that it is clear and useful. The functionality Results was chosen two times as most favourite, as one participant found it understandable and one participant did not give a reason. The functionality Making Appointments was also chosen two times as most favourite but participants did not give an explanation as to why. Lastly the functionality E-consultation is also chosen two times as one participants stated it is useful for asking questions before an appointment and one participant stated that it would be useful as an alternative for making an appointment.

The functionality E-consultation was named by two participants as least favourite as one found it redundant and one participant did not give a reason. The functionality Results was named by one participant as least favourite as she stated that she had a bad experience with understanding it. One participant stated that all the functionalities were her favourite and two participants perceived the functionalities as good but not for them, and one participant stated that none of the functionalities are appealing. Six participants advice the hospital to make the patient portal clear and simple, not use difficult words, make it more fun and accessible. Three participants advice the hospital to inform patients about the existence of patient portals and explain how they work. Three participants advised to not use e-consultations because they perceived it as not human-friendly. Another participant viewed the whole idea of patient portals to be lacking humanity therefore she perceived it as a bad idea. Other participants advised hospitals to keep the option of telephone use (1/15), modify the result section (1/15), and not making patient portal use mandatory (1/15).

4. Discussion

4.1 General Perceptions of Patient Portals

The purpose of this study was to examine how low educated elderly patients perceive patient portals and what benefits, barriers, and preconditions they have regarding the general format and content. This study shows that all participants who have experience with using a patient portal were positive about it and found it useful, in contrary to participants who had never used it before. The participants apprehensive about patient portals were unsure about the actual benefit and viewed extensive use of computers as not human-friendly. Participants also perceived their lack of technological proficiency, experience or their perception of a patient portal as barriers, similar to findings in other studies (Woods et al., 2017; Hoogenbosch et al., 2018). Self-reported use of a computer or tablet was low and the online activities named by participants vary from basic use to advanced use. Participants who perceived their technological skills as low might have low Self-Efficacy which refers to a participant's belief in own ability to use a patient portal (Venkatesh et al., 2003). Similar to the research of Irizarry et al. (2017), participants in this research collectively reported patient portals as a useful technology but contrary to Irizarry et al. (2017) most still expressed their disinterest in using it. Furthermore, a few participants stated that their health status would be a determinant in whether they would use a patient portal. Which is not surprising, as it is consistent with the literature. For example, Sarkar et al. (2011) found that older adults make more use of online health services than younger patients and attribute this to older adults' increased health care and self-management needs.

4.2 Perception of the Five Functionalities of a Patient Portal

This research also aimed at examining low educated elderly patients' perceived benefits, barriers, and required preconditions regarding potential functionalities. Participants had an overall positive view of the functionalities, especially when they perceived them as necessary or as useful tools. The examples of the functionalities were generally perceived negatively, as participants found them to difficult and unclear. The underlying issue might be that most participants, in this research sample, had limited experience with technology, only used the internet for basic activities, and therefore have expected the patient portal examples that were shown to be similar in easiness and clarity (Effort Expectancy), thus their expectations were not met (Venkatesh et al., 2003).

The functionalities Overview Medication and Questionnaire were perceived as favourite and were considered most useful. Participants perceived the functionality Overview Medication especially useful in combination with a lot of medicine. This research finding is relatable to a

study by Ukoha, Feinglass & Yee (2019) in which they found that patients with a lot of medicine were more likely to use an online health tool. The functionality E-consultation was chosen as least favourite as participants deemed it unnecessary. It was not a surprising outcome, as perceived usefulness is an important determinate as seen in other literature (Hoogenbosch et al., 2018) and many participants' preferred face-to-face contact.

Technological skills and interests seemed to be an important factor in using the functionality 'Making Appointments'. Most participants who rate themselves as having low technological skills found this functionality, unnecessary or too difficult to use. However, most participants liked the options of being able to choose their doctor and making or cancelling an appointment, but might have felt that the example (appendix 3) was too difficult to understand.

The functionality 'Overview Test Results' was perceived mainly as positive and participants liked the option of direct personal access to their medical information especially because they could show it to others. General negative perceptions were that the functionality was deemed not understandable, patients rated their personal skills as low and stated even with help from others they would not use this functionality. Which could be linked to low Self-Efficacy (Venkatesh et al., 2003). Also, this participant sample was low educated, so most might have difficulties understanding health information (Schillinger et al., 2003). It is recommended that patient portal designers use simple language, add additional information and be prudent with negative results.

The functionality 'Overview Medication' was perceived as highly useful for self-management of illness. However, some participants perceived the functionality as not trustworthy or rated their technological skills as low, or have low trust in security and privacy of information (as information could be inaccurate), and as impersonal. The underlying issues mainly seemed to be the participants' personal level of anxiety and low Self-Efficacy (Venkatesh et al., 2003). It is recommended that health care organizations provide patients with accurate information and guide them in using patient portals.

None of the participants had heard of 'E-consultation' but interestingly most participants indicated that they would never use it. Various reasons were given but mainly participants perceived this functionality as unreliable or had concerns it would be unrealistic because it would enhance doctors' workload. The latter was an unexpected outcome as health care providers generally have a more negative attitude towards similar health applications and patients have a more positive attitude (Qudah & Luetsch, 2019).

The functionality 'Questionnaires' was perceived by most participants as useful because they found the option of privacy when answering questionnaires at home appealing. Another

positive perception was that an online questionnaires was perceived to give a better overview and makes it easier to understand the questions. Only a few viewed this functionality as difficult to use because of their own technological skills and interest, comparable to findings in a different research study (Vaportzis, Giatsi Clausen, & Gow, 2017).

4.3 Preferences and Advice for Hospitals

Participants advised the hospitals to design patient portals in a way that is clear and simple for every user, to not use difficult words, and make it more fun and accessible. The participants' advice was in accordance with findings in previous research by Khan et al. (2018) were they emphasized the importance of a patient portal design. Also, providing additional information and explanation to patients was highly recommended by the participants. It seemed that the idea of using a computer or the internet was considered not human-friendly by a few participants, similar to participants in a research study by Vaportzis, Giatsi Clausen, & Gow (2017). This could be due to their age and level of familiarity with patient portals, or due to their lack of positive experience with technology and/or due to their perception of health care through technology. Lastly, participants recommended hospitals to not obligate patients to use patient portals thus advising hospitals to preserve alternative ways of communication such as telephone use. Which was not surprising as many health care research has recommended blended care. For example, Talboom-Kamp, Verdijk, Kasteleyn, Numans, and Chavannes (2018) assume that blended care in which eHealth is integrated fully into disease management programs and personal assistance for patients is available will lead to higher and better use of an eHealth platform.

4.4 Strengths, Limitations and Recommendations

A strength of this research is, that as far as we know this is the first study to examine low educated elderly patients in relation to their perceptions of patient portals. Most participants (87%) in this study highest attained education level was a high school degree which is a strength as this is in coherence with this research's exclusion and inclusion criteria. Also, most participants have self-reported that they have limited technological skills, which is another strength because it provides inside into many other vulnerable target groups.

Participants varied in degrees of illness or disease and were not sampled based on chronic illness which is a limitation. Thus the degree or type of illness was not taken into account when choosing the participants or conducting the interviews. Therefore intentions, perceptions, and preferences to use a patient portal might be due to the degree and seriousness of a participant's disease or whether a patient has a chronic illness. This means that patients with a lesser illness or without a chronic disease might not be as interested in using patient

portals as patients who have a more serious condition. Which was also found in this research, as many participants were only interested in patient portal usage if they had a poor health status. However, Ukoha, Feinglass & Yee (2019) stated that patients with a complicated or bad health status were less likely to use an online health tool such as a patient portal.

Research in the future is recommended to take the degree in which a participant is ill into consideration, combined with the level of eHealth or health literacy and age, as other researchers have done in similar studies (Van der Vaart et al., 2011; Van der Vaart et al., 2013; Khan et al., 2018). It is clear that participants in this research view their technological skills as low and express a lack of confidence in being able to learn new skills. Future research should focus on designing an intervention in coherence with this target group's self-rated technological skills. They should empower participants to feel confident in using patient portals. Further findings show that participants are often not aware of the existence of patient portals or on how to use them. Hospitals should therefore provide information about their patient portals and provide their employees with distributable informational materials such as pamphlets or email attachments. Hospitals should take on policies that create opportunities for health care providers to use patient portals in their treatments. In agreement with Van der Vaart et al. (2013) who recommend that patients should be guided in using patient portals, this research also found that participants indicate that their hospitals and health professionals should distribute information and offer explanation about patient portals as participants seem to receive little to no information.

5. Conclusion

This study found that most elderly low educated patients were unfamiliar and unexperienced with patient portals and thus cannot benefit from them. Participants in this research were found to see the advantages of using a patient portal but most were unsure about the actual benefit and viewed extensive use of computers as not human-friendly. Participants perceived their own technological skills, and Self-Efficacy as low and preferred to keep the current way of accessing their medical information unaffected. Blended health care is recommended because patients indicate that they would benefit more from a combination of regular health care service and online health care service. Furthermore participants recommended patient portal designers to make patient portals easier and more understandable for all types of patients. Therefore patient portals should be improved to fit the needs and preferences of vulnerable groups such as low educated elderly patients. Future research should take these findings into consideration and take degree of a participant's illness into account in addition to their age and education level.

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Appendix 1: Invitation participants, Dutch

Uitnodiging voor de deelname aan een interview over Patiënt Portalen

Mijn naam is Reyan Abdalrahim en ik studeer Gezondheidspsychologie en technologie aan de Universiteit van Twente in Enschede. Ik doe onderzoek naar patiënten portalen voor mijn Master scriptie.

Graag nodig ik u uit voor een **interview** over patiënt portalen. Patiënt portalen zijn websites speciaal gebouwd door ziekenhuizen voor hun patiënten. Hierin kunnen patiënten onder andere hun persoonlijke medische gegevens inzien. Voorheen kenden wij in Nederland alleen de papieren medische dossier, waarin medische gegevens zoals, welke medicatie een patiënt gebruikt, of welke operaties een patiënt heeft ondergaan in stonden. In de toekomst wil de Nederlandse overheid overstappen naar websites waarin patiënten vanuit thuis hun medische dossier altijd kunnen inzien. In dit interview zou ik graag willen weten hoe u er tegen aankijkt. U mening over dit onderwerp is erg belangrijk!

Informatie over het interview zelf:

Het interview zal gemiddeld **60 minuten** duren. In het interview worden **60 open vragen** gesteld. Met open vragen wordt bedoeld, vragen waar je vrij je mening kunt geven en niet alleen met ja en nee hoeft te antwoorden. In het interview worden er 5 onderdelen besproken en uitgelegd, namelijk;

1. *Afspraken maken*
2. *Uitslagen*
3. *Overzicht Medicatie*
4. *Overzicht Allergieën*
5. *E-consult*
6. *Vragenlijst*

De interviews worden door mij, Reyan Abdalrahim, afgenomen. De deelname aan een interview is natuurlijk vrijwillig en u kunt op elk moment tijdens het interview stoppen. Bij het interview zal ik u vragen of ik het gesprek op mag nemen met **een recorder** om het later uit te kunnen typen. Hiervoor ga ik **u toestemming** vragen. De interviews worden achteraf geanonimiseerd, dus uw persoonlijke gegevens zullen niet zichtbaar zijn.

U krijgt een samenvatting van het interview vier weken later opgestuurd met de vraag of u met de inhoud eens bent. U krijgt ook de mogelijkheid om op aanvraag het gehele transcript opgestuurd te krijgen. U kunt mij **e-mailen of bellen** als u interesse heeft.

UNIVERSITY OF TWENTE.

Hartelijk dank,

Reyan Abdalrahim

e-mail: reyan.abdalrahim@hotmail.com

Mobiele nummer: 0653200992

Appendix 2: Interview scheme, Dutch

Interview vragen

Goedemorgen/Goedemiddag, mijn naam is Reyan Abdalrahim en ik studeer Gezondheidspsychologie en technologie aan de Universiteit van Twente in Enschede. Ik doe onderzoek naar patiënten portalen voor mijn Master scriptie. Vandaag zou ik graag uw mening willen weten over verschillende onderdelen van de patiënten portalen en wat u er in het algemeen van vindt.

Ik wil vandaag met uw een aantal onderdelen uit het patiëntportaal bespreken.
U mag tijdens het interview uw mening delen. Er is geen goed of fout antwoord, uw mening telt. Als u liever niet op een vraag wilt antwoorden of wilt stoppen met het interview, dan mag u dat altijd aangeven. Ik zal heel zorgvuldig met uw antwoorden omgaan. Er zullen geen persoonlijke gegevens zoals uw naam, zichtbaar zijn in het eind verslag of met derden worden gedeeld. Ik zou ook aan u willen vragen of het goed is als ik het interview opneem met geluidsopname. Ik doe dit zodat ik uw antwoorden na het gesprek kan uittypen. Het is belangrijk voor mijn onderzoek dat ik zoveel mogelijk informatie heb en niets vergeet. Als ik het interview heb uitgetypt, dan verwijder ik de geluidsopname. De geluidsopname zal met niemand worden gedeeld. Alleen ik luister hem af voor het uittypen.

Allereerst zou ik graag willen beginnen het toestemmingsformulier te bekijken en we zullen het stap voor stap doornemen voordat we beginnen (toestemmingsformulier vermeldt kwesties over privacy en vraagt om een gesprek op te nemen en te controleren of de deelnemer alles begrijpt) zie bijlage 1.

- Toestemmingsformulier is ingevuld
- Geluidsopname AAN

Dit interview duurt ongeveer 60 minuten. Ik zal eerst algemene vragen stellen en dit zal ongeveer 10 minuten duren en vervolgens vijf onderdelen laten zien waarover ik uw mening zal vragen. We hebben per onderdeel 10 minuten de tijd.

Algemene vragen

Graag begin ik met een aantal algemene vragen

1. Hoe oud bent u?
2. Waar woont u nu en waar bent u opgegroeid?
3. Wat voor opleiding heeft u gedaan?
4. Gebruikt u zelf weleens een computer of tablet?
5. Zo ja, hoe vaak/wat doet u daar meestal op?
6. Heeft u wel eens van een patiëntportaal gehoord?
7. Waar denkt u aan als u het woord patiëntportaal hoort?

UITLEG PATIENT PORTAAL

Vroeger hielden ziekenhuizen van iedere patiënt een papieren medisch dossier bij. In dit dossier stond welke medicijnen de patiënt moest hebben, welke behandeling de patiënt kreeg en welke afspraken de patiënt had gehad. Tegenwoordig hebben steeds meer ziekenhuizen een online medisch dossier. Een patiëntportaal is een persoonlijke website waar u uw medisch dossier kunt inzien maar ook bijvoorbeeld afspraken kunt maken, of uw medicijnen kunt inzien.

8. Heeft u weleens een patiënt portaal gebruikt.
9. Zo ja, Wat vond u ervan? *(makkelijk, moeilijk, prettig, onprettig)*
10. Kunt u dat meer uitleggen *(Waarom vond u dat) (makkelijk, moeilijk, prettig, onprettig, nuttig/zinvol)?*
11. Zo nee zou u het gebruiken?
12. Kunt u daar meer over vertellen? *(Waarom wel, Waarom niet?)*
13. Kent u mensen in uw omgeving die een patiëntportaal gebruiken?

14. Ziet u voordelen aan het gebruiken van een patiënt portaal?
15. Zo ja, welke?
16. Zo nee, welke nadelen ziet u?

Ik zou u nu graag een aantal onderdelen willen laten zien. Hiervoor gebruik ik foto's van bestaande patiënten portalen. Ik zal deze foto's gebruiken van het Sint Antonius ziekenhuis in Utrecht en IJsselland ziekenhuis in Capelle aan de IJssel. De onderdelen die ik u ga laten zien zijn, Afspraken maken, Uitslagen, Overzicht Medicatie, E-consult en Vragenlijst.

- Start PowerPoint presentatie

<u>Afspraken maken</u>

1. Wat doet u nu als u een afspraak wil maken in het ziekenhuis?
2. Heeft u wel eens via een website een afspraak gemaakt?
3. Zo ja, hoe ging dat?
4. Hoe zou u het vinden als u zelf een tijd en een dag kunt kiezen waarop de afspraak plaatsvindt?
5. Hoe zou u het vinden als u zelf een arts kunt kiezen bij wie u de afspraak heeft?
6. Hoe zou u het vinden als u zelf via de website een afspraak kunt maken of wijzigen en zelf een nieuwe dag en tijd kunnen kiezen?
7. Hoe zou u het vinden als u via de website een afspraak kunt afzeggen?
8. Kunt u voordelen bedenken van een afspraak maken via een website ten opzichte van een afspraak maken via de telefoon?
9. Kunt u nadelen bedenken van een afspraak maken via een website ten opzichte van een afspraak maken via de telefoon?

<u>Ik ga u nu een voorbeelden laten zien van dit onderdeel.</u>

10. Hoe vindt u dat dit onderdeel eruit ziet (PowerPoint laten zien)?
11. Zou u daar meer over kunnen vertellen?
12. Hoe zou u het vinden als u ziekenhuis dit heeft?
13. Zou u het ook gebruiken?
14. Is er iemand die u hierbij kan helpen?
15. Zo ja, zou u het dan wel/meer gebruiken?
16. Zo nee, kunt u uitleggen wat het onaantrekkelijk maakt voor u?

<u>Uitslagen</u>

Met dit onderdeel kunt u nieuwe en oude testuitslagen zien, zoals bijvoorbeeld van een bloedtest. Dit kan doormiddel van het zien van bijvoorbeeld u bloedwaardes in de vorm van cijfers of bijvoorbeeld in een grafiek.

1. Wat doet u nu als u een uitslag wil weten van een test?
2. Heeft u wel eens via een website een uitslag ingezien?
3. Zo ja, hoe ging dat?
4. Hoe zou u het vinden als u zelf u uitslagen kunt inzien?
5. Kunt u voordelen bedenken van een uitslag bekijken via een website ten opzichte van een uitslag krijgen via de arts?
6. Kunt u nadelen bedenken van een uitslag bekijken via een website ten opzichte van een uitslag krijgen via de arts?

<u>Ik ga u nu een voorbeelden laten zien van dit onderdeel.</u>

7. Hoe vindt u dat dit onderdeel eruit ziet (PowerPoint laten zien)?
8. Zou u daar meer over kunnen vertellen?

9. Hoe zou u het vinden als u ziekenhuis dit heeft?
10. Zou u het ook gebruiken?
11. Is er iemand die u hierbij kan helpen?
12. Zo ja, zou u het dan wel/meer gebruiken?
13. Zo nee, kunt u uitleggen wat het onaantrekkelijk maakt voor u?

Overzicht Medicatie

Met dit onderdeel kunt u alle voorgeschreven medicatie zien waarvan u ziekenhuis op de hoogte is. Ook kunt u zelf nieuwe medicatie toevoegen.

1. *Gebruikt u weleens medicijnen?*
2. Wat doet u *(of de persoon die u kent)* nu als u uw medicijnen wil inzien?
3. Heeft u wel eens via een website u medicijnen in kunnen zien?
4. Zo ja, hoe ging dat?
5. Hoe zou u het vinden als u zelf via de website u medicijnen kunt inzien?
6. Kunt u voordelen bedenken van medicijnen inzien via een website?
7. Kunt u nadelen bedenken van medicijnen inzien via een website?

Ik ga u nu een voorbeeld laten zien van dit onderdeel.

8. Hoe vindt u dat dit onderdeel eruit ziet (PowerPoint laten zien)?
9. Zou u daar meer over kunnen vertellen?
10. Hoe zou u het vinden als u ziekenhuis dit heeft?
11. Zou u het ook gebruiken?
12. Is er iemand die u hierbij kan helpen?
13. Zo ja, zou u het dan wel/meer gebruiken?
14. Zo nee, kunt u uitleggen wat het onaantrekkelijk maakt voor u?

E-consult

1. Kent u het woord E-consult?
2. Heeft u dit woord wel eens gezien? (Zo ja, waar?)
3. Wat denkt u dat het betekent?

Uitleg: Met een e-consult kan je vragen stellen aan je arts via je persoonlijke website (het portaal). Het werkt een beetje zoals een email. Je typt een bericht en verstuurd het naar de arts. De arts zal een aantal dagen later antwoorden. Het e-consult is alleen voor vragen die geen spoed hebben. Met dit onderdeel kunt u niet dringend vragen stellen via een bericht aan u arts.

4. Wat vindt u van het idee om vragen te kunnen stellen aan een arts?
5. Wat doet u nu als u uw een medische of gezondheidsvraag hebt?
6. Heeft u wel eens via een website een medische of gezondheidsvraag gesteld?
7. Zo ja, hoe ging dat?
8. Hoe zou u het vinden als u zelf via de website een medische of gezondheidsvraag kunt stellen?
9. Kunt u voordelen bedenken van het stellen van medische of gezondheidsvragen via een website?
10. Kunt u nadelen bedenken van medische of gezondheidsvragen via een website?

Ik ga u nu een voorbeeld laten zien van dit onderdeel.

11. Hoe vindt u dat dit onderdeel eruit ziet (PowerPoint laten zien)?
12. Zou u daar meer over kunnen vertellen?
13. Hoe zou u het vinden als u ziekenhuis dit heeft?
14. Zou u het ook gebruiken?

15. Is er iemand die u hierbij kan helpen?
16. Zo ja, zou u het dan wel/meer gebruiken?
17. Zo nee, kunt u uitleggen wat het onaantrekkelijk maakt voor u?

Vragenlijst

Met dit onderdeel kunt u vragenlijsten invullen die u bijvoorbeeld nodig heeft voor een operatie.

1. Heeft u wel eens een vragenlijst ingevuld voor het ziekenhuis? *zo nee, *Stel dat…*
2. Hoe gaat het nu als u uw een vragenlijst moet invullen voor het ziekenhuis?
3. Heeft u wel eens via een website een vragenlijst ingevuld?
4. Zo ja, hoe ging dat?
5. Hoe zou u het vinden als u zelf de vragenlijst thuis op de computer kunt invullen via de persoonlijke website (portaal)?
6. Kunt u voordelen bedenken van het invullen van een vragenlijst thuis op de computer via de website?
7. Kunt u nadelen bedenken van het invullen van een vragenlijst thuis op de computer via de website?

Ik ga u nu een voorbeeld laten zien van dit onderdeel.

8. Hoe vindt u dat dit onderdeel eruit ziet (PowerPoint laten zien)?
9. Zou u daar meer over kunnen vertellen?
10. Hoe zou u het vinden als u ziekenhuis dit heeft?
11. Zou u het ook gebruiken?
12. Is er iemand die u hierbij kan helpen?
13. Zo ja, zou u het dan wel/meer gebruiken?
14. Zo nee, kunt u uitleggen wat het onaantrekkelijk maakt voor u?

1. We hebben nu een aantal onderdelen van het portaal besproken: afspraken, uitslagen, overzicht medicatie, het e-consult en de vragenlijst. Welk onderdeel of onderdelen spreken u het meest aan?

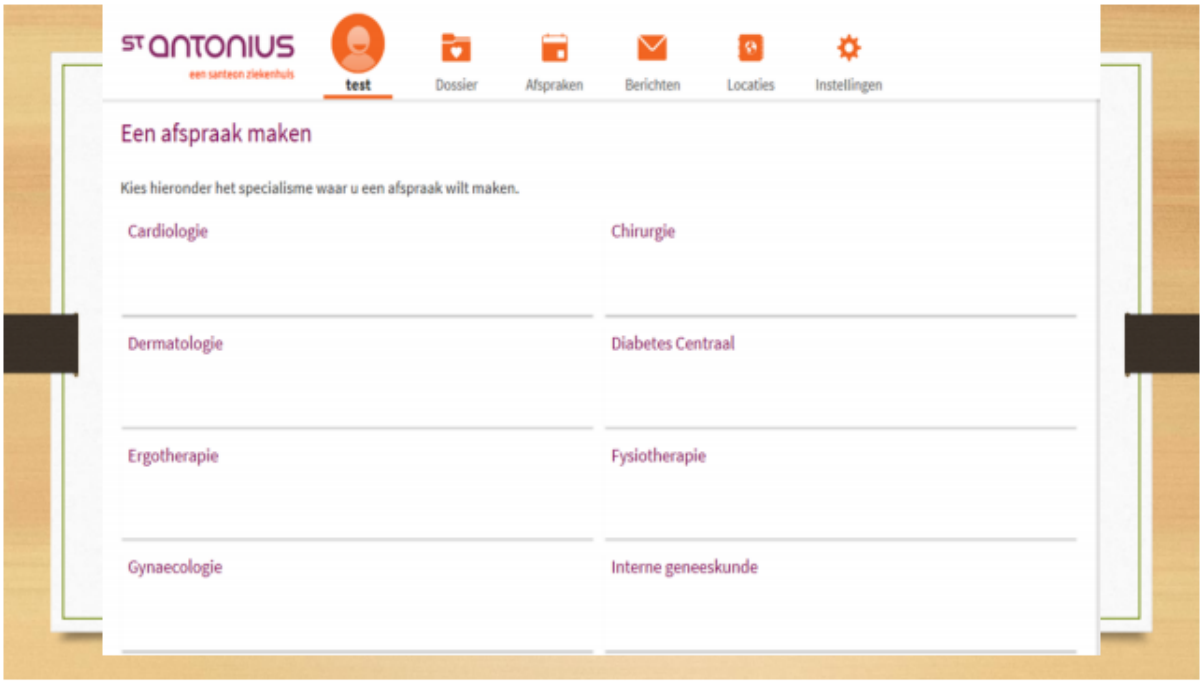
2. Nu u een beter beeld heeft van een patiënt portaal, welk advies zou u willen geven aan een ziekenhuis?

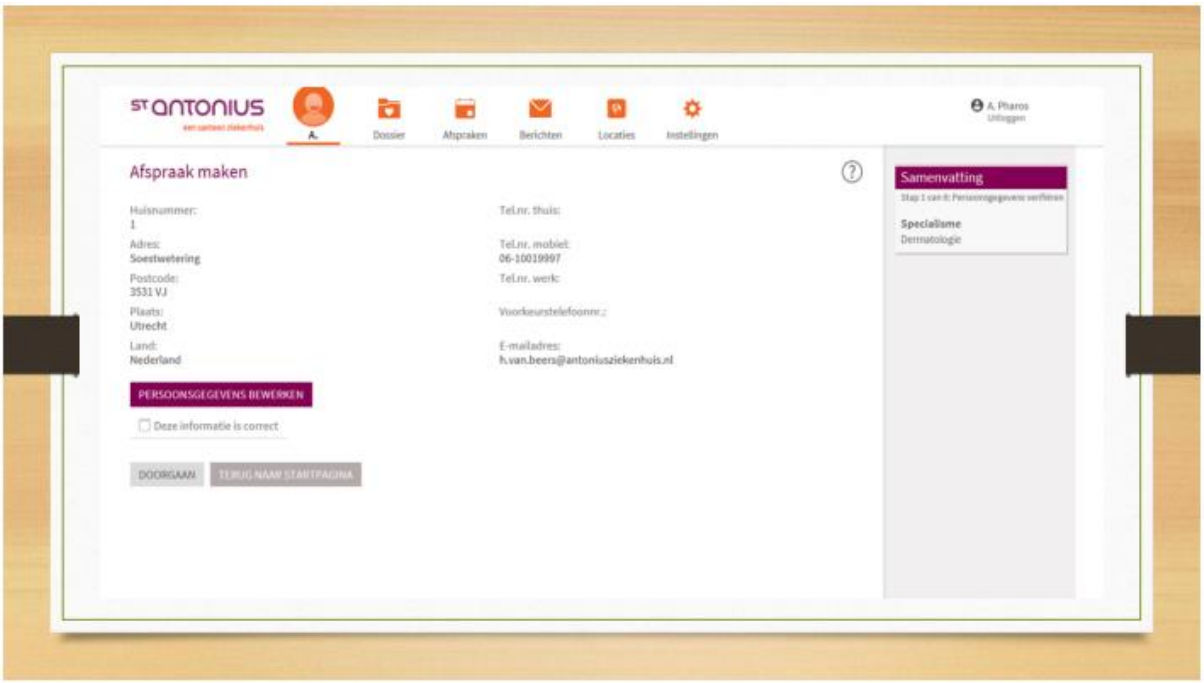
Hartelijk dank voor u tijd en voor het delen van u mening.
Heeft u nu vragen?
U mag mij altijd bellen of e-mailen als u nog vragen heeft of mijn externe begeleider vanuit Pharos.

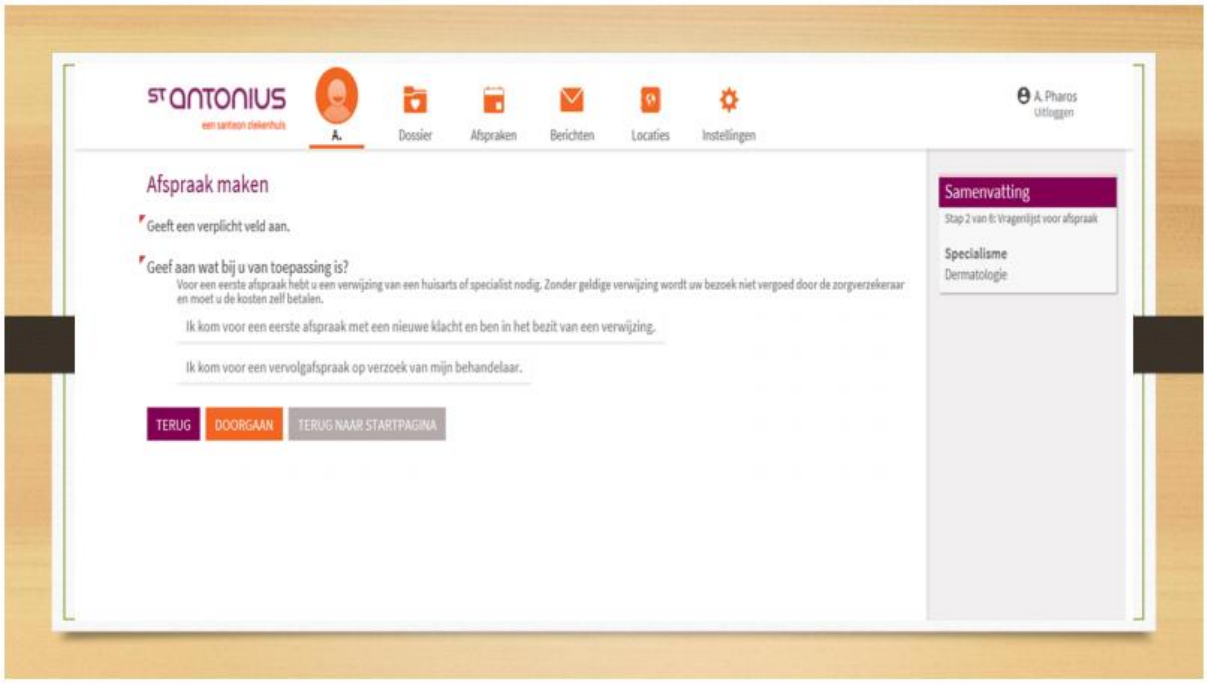
Reyan Abdalrahim
e-mail: reyan.abdalrahim@hotmail.com
Mobiel: 0653200992

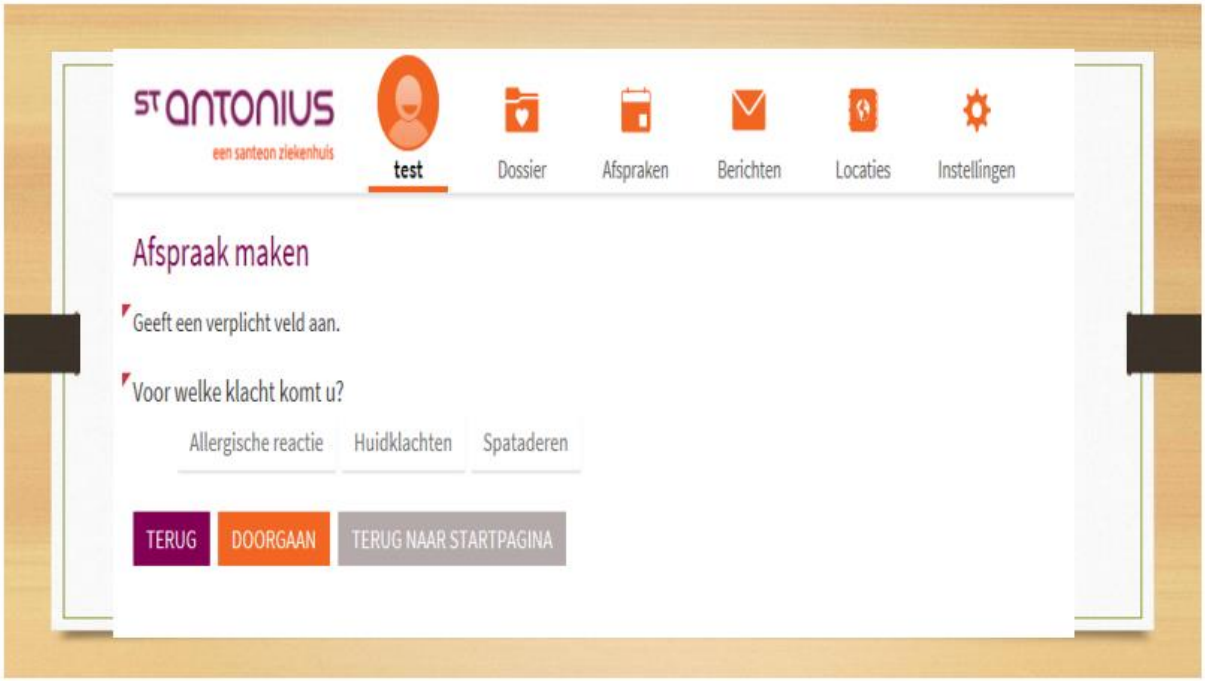
Pharos
Eline Heemskerk
e-mail: E.Heemskerk@pharos.nl>

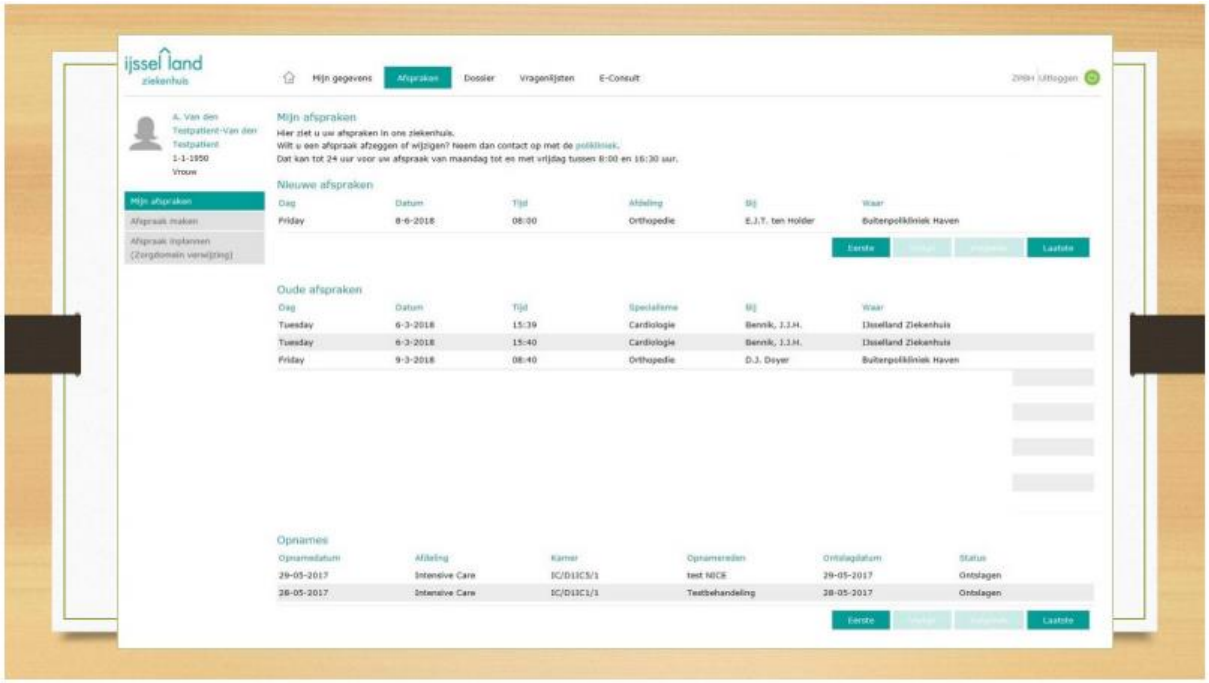
Appendix 3: PowerPoint Presentation, Dutch


ST ANTONIUS
een santeon ziekenhuis
test
Dossier
Afspraken
Berichten
Locaties
Instellingen
Een afspraak maken
Kies hieronder het specialisme waar u een afspraak wilt maken.
Cardiologie
Chirurgie
Dermatologie
Diabetes Centraal
Ergotherapie
Fysiotherapie
Gynaecologie
Interne geneeskunde


ST ANTONIUS
een santeon ziekenhuis
A.
Dossier
Afspraken
Berichten
Locaties
Instellingen
A. Pharos
Uitloggen
Afspraak maken
Huisnummer:
1
Adres:
Soestwetering
Postcode:
3531 VJ
Plaats:
Utrecht
Land:
Nederland
Tel.nr. thuis:
Tel.nr. mobiel:
06-10019997
Tel.nr. werk:
Voorkeurstelefoonnr.:
E-mailadres:
h.van.beers@antoniusziekenhuis.nl
PERSOONSGEGEVENS BEWERKEN
Deze informatie is correct
DOORGAAN
TERUG NAAR STARTPAGINA
Samenvatting
Specialisme
Dermatologie

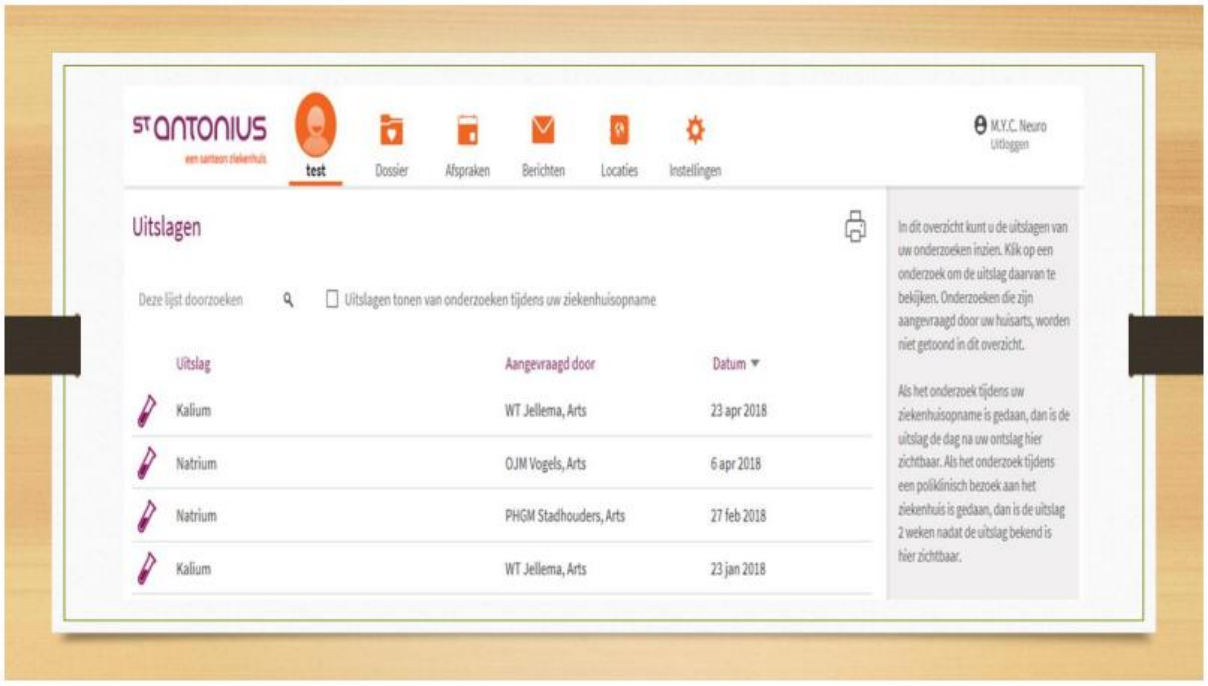

ST ANTONIUS
een santeon ziekenhuis
A.
Dossier
Afspraken
Berichten
Locaties
Instellingen
A. Pharos
Uitloggen
Afspraak maken
Geeft een verplicht veld aan.
Geef aan wat bij u van toepassing is?
Voor een eerste afspraak hebt u een verwijzing van een huisarts of specialist nodig. Zonder geldige verwijzing wordt uw bezoek niet vergoed door de zorgverzekeraar en moet u de kosten zelf betalen.
Ik kom voor een eerste afspraak met een nieuwe klacht en ben in het bezit van een verwijzing.
Ik kom voor een vervolgafspraak op verzoek van mijn behandelaar.
TERUG
DOORGAAN
TERUG NAAR STARTPAGINA
Samenvatting
Stap 2 van 8: Vragenlijst voor afspraak
Specialisme
Dermatologie


ST ANTONIUS
een santeon ziekenhuis
test
Dossier
Afspraken
Berichten
Locaties
Instellingen
Afspraak maken
Geeft een verplicht veld aan.
Voor welke klacht komt u?
Allergische reactie
Huidklachten
Spataderen
TERUG
DOORGAAN
TERUG NAAR STARTPAGINA


ijsselland ziekenhuis
Mijn gegevens
Afspraken
Dossier
Vragenlijsten
E-Consult
Uitloggen
A. Van den Testpatient-Van den Testpatient
1-1-1950
Vrouw
Mijn afspraken
Afspraak maken
Afspraak inplannen (Zorgdomein verwijzing)
Mijn afspraken
Hier ziet u uw afspraken in ons ziekenhuis.
Wilt u een afspraak afzeggen of wijzigen? Neem dan contact op met de polikliniek.
Dat kan tot 24 uur voor uw afspraak van maandag tot en met vrijdag tussen 8:00 en 16:30 uur.
Nieuwe afspraken
Dag
Datum
Tijd
Afdeling
Bij
Waar
Friday
8-6-2018
08:00
Orthopedie
E.J.T. ten Holder
Buitenpolikliniek Haven
Eerste
Laatste
Oude afspraken
Dag
Datum
Tijd
Specialisme
Bij
Waar
Tuesday
6-3-2018
15:39
Cardiologie
Bennik, J.J.H.
IJsselland Ziekenhuis
Tuesday
6-3-2018
15:40
Cardiologie
Bennik, J.J.H.
IJsselland Ziekenhuis
Friday
9-3-2018
08:40
Orthopedie
D.J. Doyer
Buitenpolikliniek Haven
Opnames
Opnamedatum
Afdeling
Kamer
Opnamereden
Ontslagdatum
Status
29-05-2017
Intensive Care
IC/D11C5/1
test NICE
29-05-2017
Ontslagen
28-05-2017
Intensive Care
IC/D11C1/1
Testbehandeling
28-05-2017
Ontslagen
Eerste
Laatste


Afspraken Maken
Sint Antonius
IJsselland
ST ANTONIUS
Een afspraak maken
Cardiologie
Chirurgie
Dermatologie
Diabetes Centraal
Ergotherapie
Fysiotherapie
Gynaecologie
Interne geneeskunde

Uitslagen


ST ANTONIUS
een santeon ziekenhuis
test
Dossier
Afspraken
Berichten
Locaties
Instellingen
M.Y.C. Neuro
Uitloggen
Uitslagen
Deze lijst doorzoeken
Uitslagen tonen van onderzoeken tijdens uw ziekenhuisopname
Uitslag
Aangevraagd door
Datum
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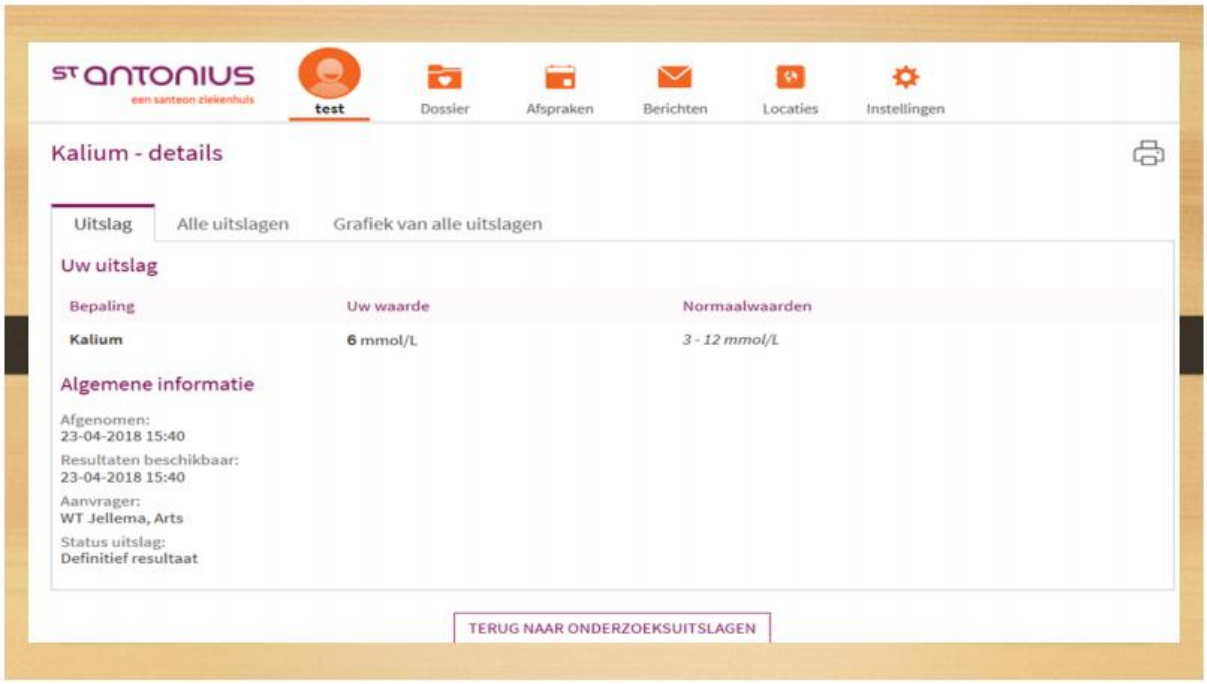
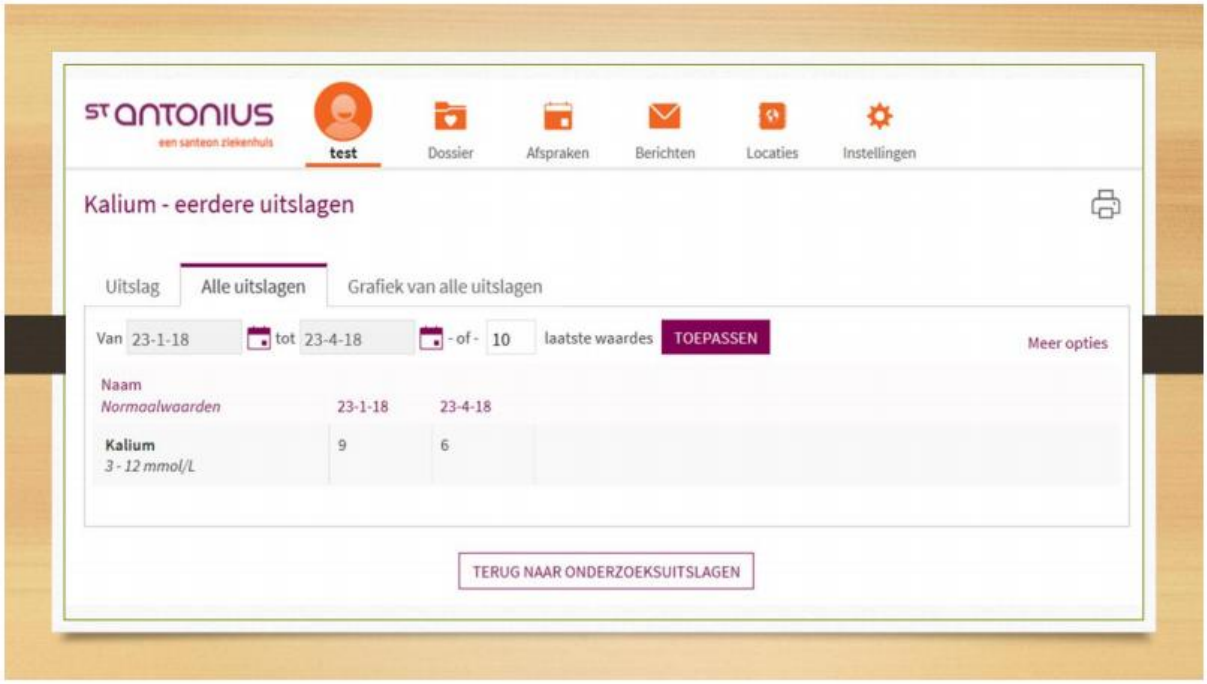
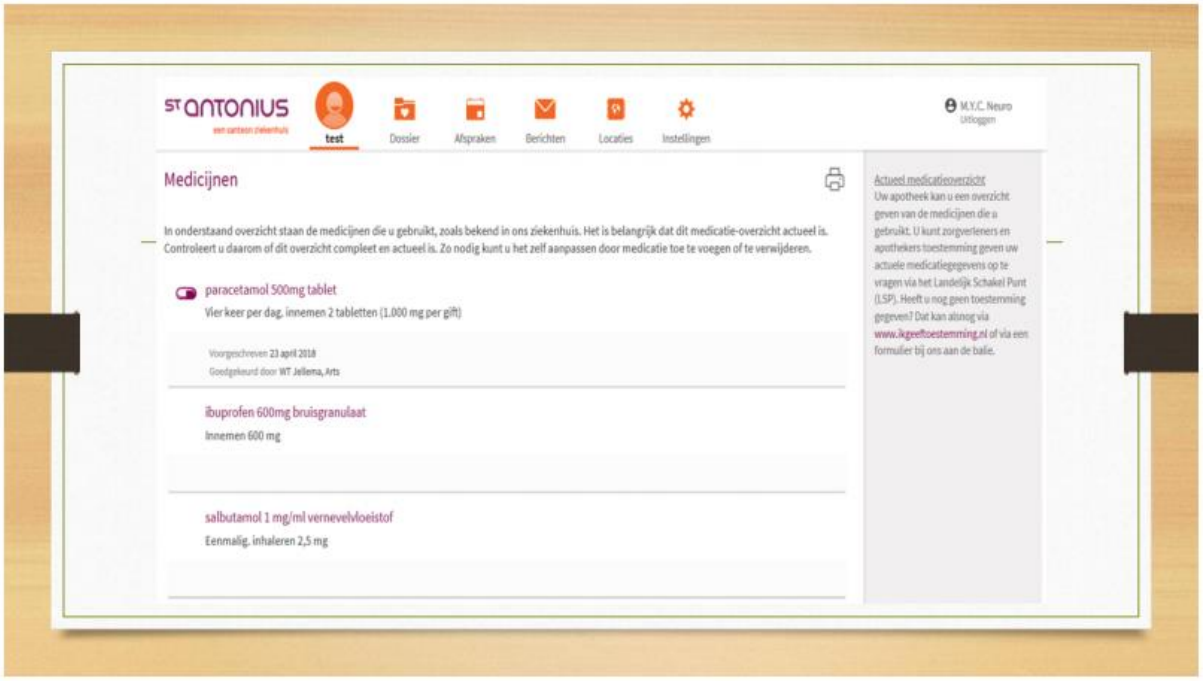
WT Jellema, Arts
23 apr 2018
Natrium
OJM Vogels, Arts
6 apr 2018
Natrium
PHGM Stadhouders, Arts
27 feb 2018
Kalium
WT Jellema, Arts
23 jan 2018
In dit overzicht kunt u de uitslagen van uw onderzoeken inzien. Klik op een onderzoek om de uitslag daarvan te bekijken. Onderzoeken die zijn aangevraagd door uw huisarts, worden niet getoond in dit overzicht.
Als het onderzoek tijdens uw ziekenhuisopname is gedaan, dan is de uitslag de dag na uw ontslag hier zichtbaar. Als het onderzoek tijdens een poliklinisch bezoek aan het ziekenhuis is gedaan, dan is de uitslag 2 weken nadat de uitslag bekend is hier zichtbaar.

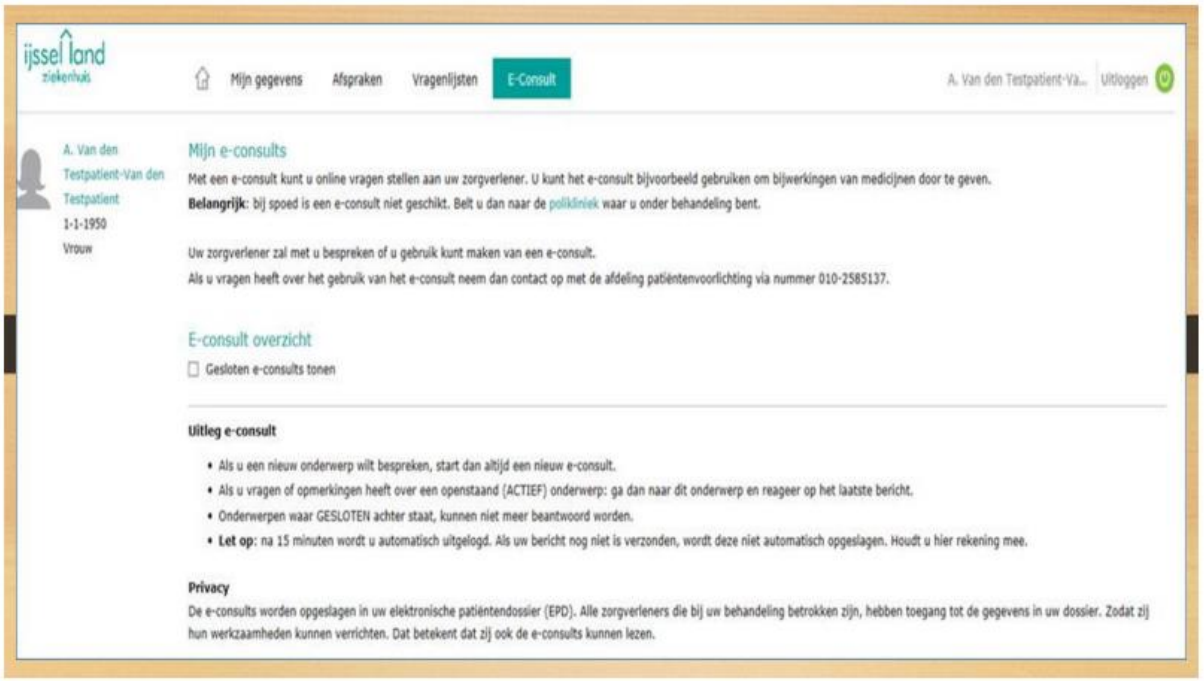

ST ANTONIUS
een santeon ziekenhuis
test
Dossier
Afspraken
Berichten
Locaties
Instellingen
Kalium - details
Uitslag
Alle uitslagen
Grafiek van alle uitslagen
Uw uitslag
Bepaling
Uw waarde
Normaalwaarden
Kalium
6 mmol/L
3 - 12 mmol/L
Algemene informatie
Afgenomen:
23-04-2018 15:40
Resultaten beschikbaar:
23-04-2018 15:40
Aanvrager:
WT Jellema, Arts
Status uitslag:
Definitief resultaat
TERUG NAAR ONDERZOEKSUITSLAGEN

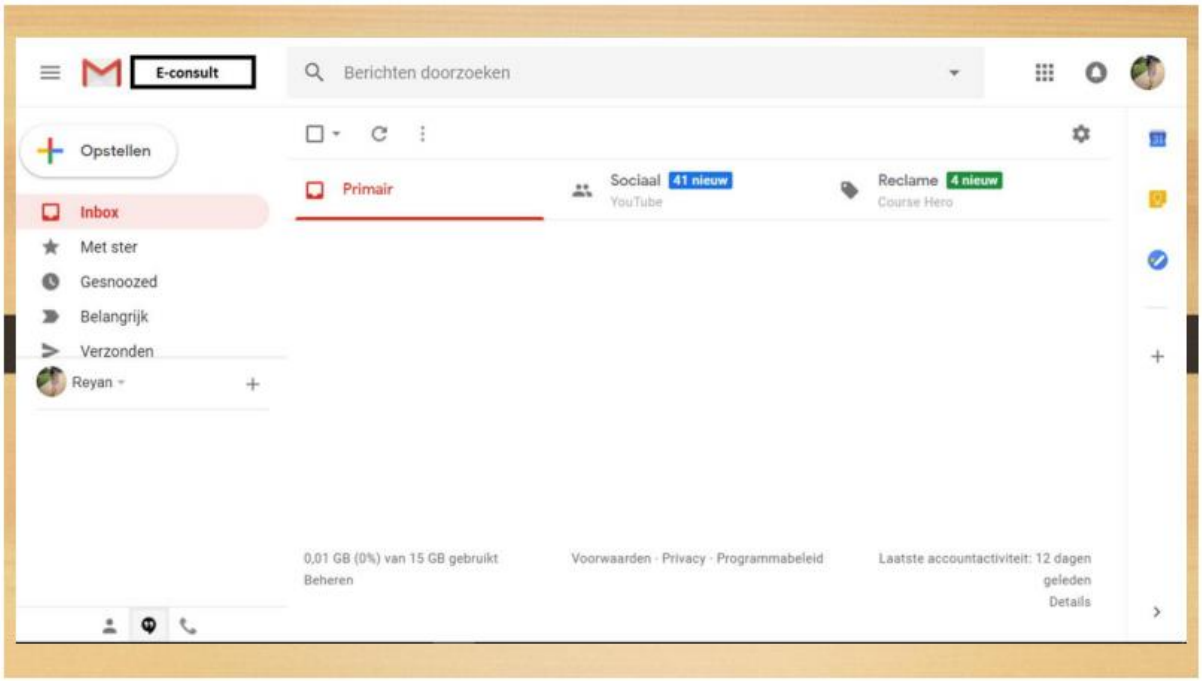

ST ANTONIUS
een santeon ziekenhuis
test
Dossier
Afspraken
Berichten
Locaties
Instellingen
Kalium - eerdere uitslagen
Uitslag
Alle uitslagen
Grafiek van alle uitslagen
Van 23-1-18
tot 23-4-18
- of -
10
laatste waardes
TOEPASSEN
Meer opties
Naam
Normaalwaarden
23-1-18
23-4-18
Kalium
3 - 12 mmol/L
9
6
TERUG NAAR ONDERZOEKSUITSLAGEN

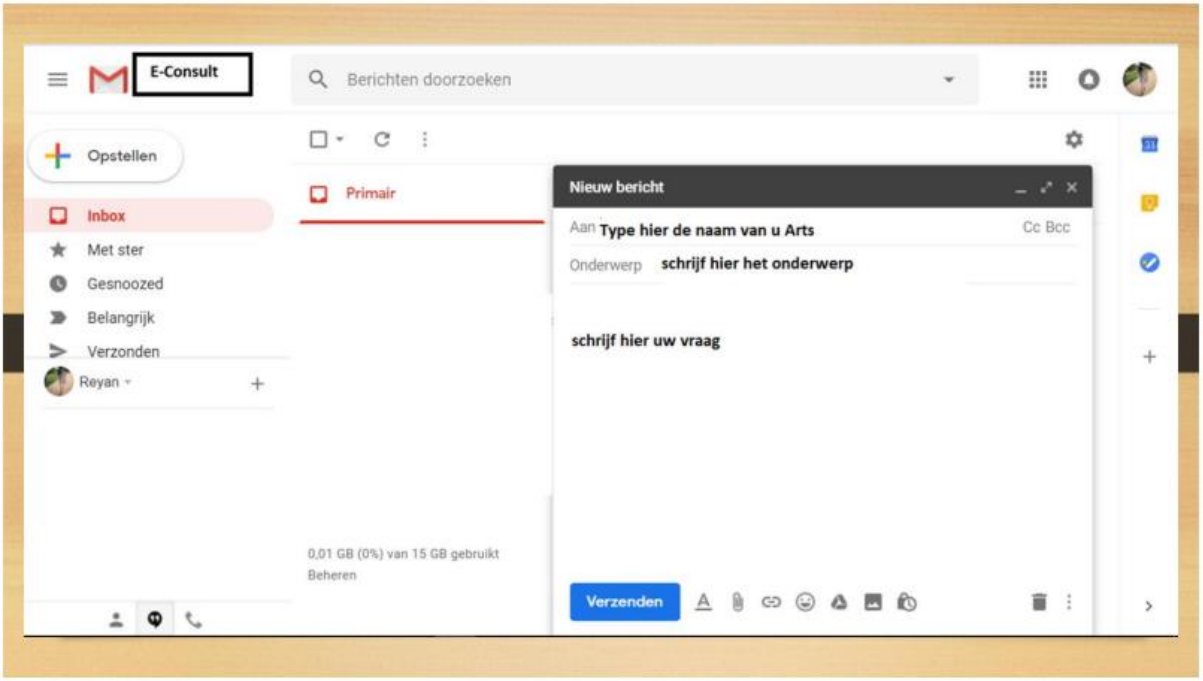
Overzicht Medicatie

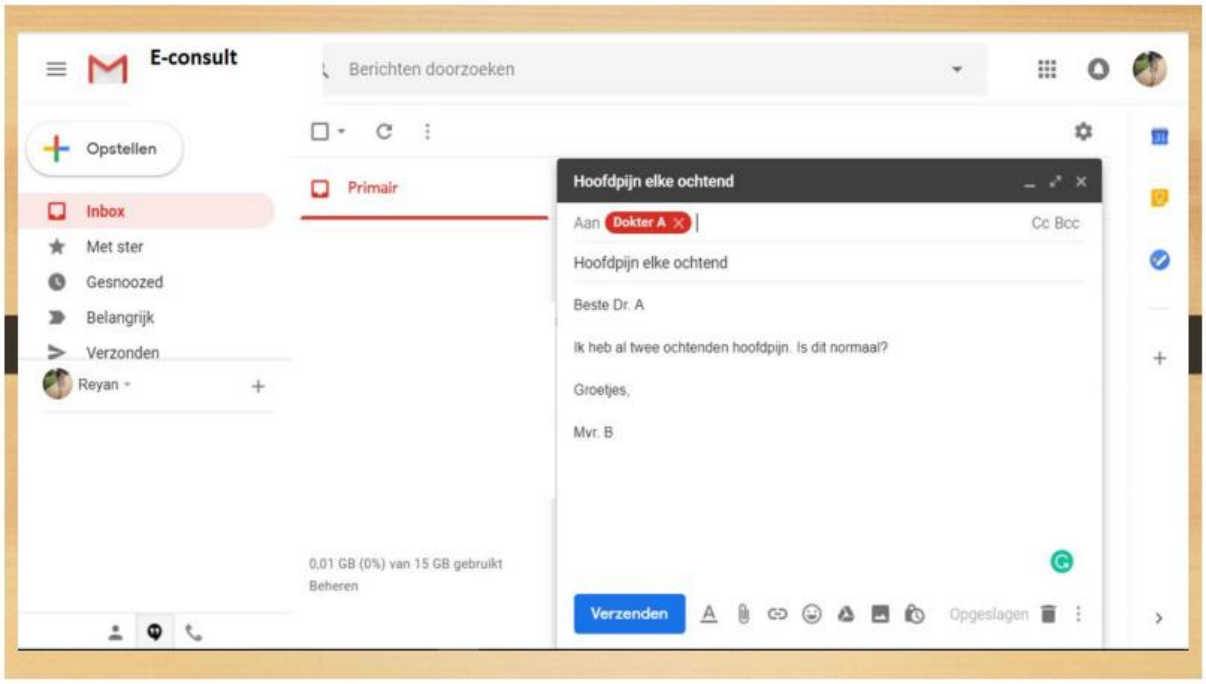


E-consult

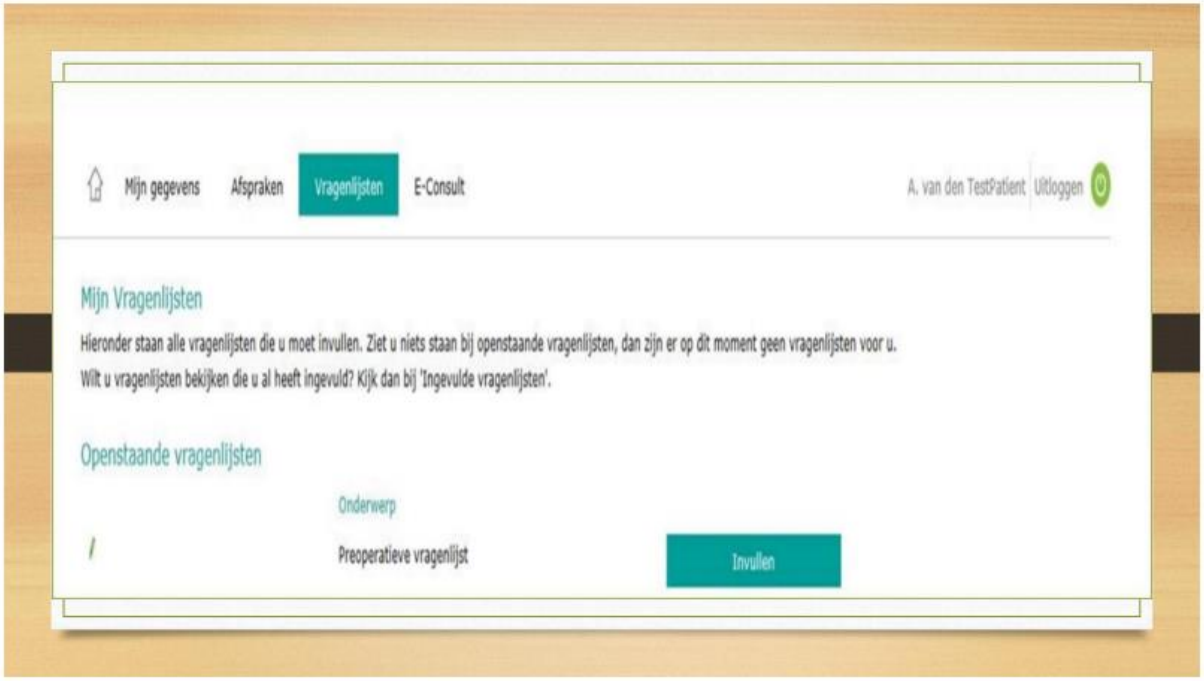

ijssel land ziekenhuis
Mijn gegevens
Afspraken
Vragenlijsten
E-Consult
A. Van den Testpatient-Va...
Uitloggen
A. Van den Testpatient-Van den Testpatient
1-1-1950
Vrouw
Mijn e-consults
Met een e-consult kunt u online vragen stellen aan uw zorgverlener. U kunt het e-consult bijvoorbeeld gebruiken om bijwerkingen van medicijnen door te geven.
Belangrijk: bij spoed is een e-consult niet geschikt. Belt u dan naar de polikliniek waar u onder behandeling bent.
Uw zorgverlener zal met u bespreken of u gebruik kunt maken van een e-consult.
Als u vragen heeft over het gebruik van het e-consult neem dan contact op met de afdeling patiëntenvoorlichting via nummer 010-2585137.
E-consult overzicht
Gesloten e-consults tonen
Uitleg e-consult
Als u een nieuw onderwerp wilt bespreken, start dan altijd een nieuw e-consult.
Als u vragen of opmerkingen heeft over een openstaand (ACTIEF) onderwerp: ga dan naar dit onderwerp en reageer op het laatste bericht.
Onderwerpen waar GESLOTEN achter staat, kunnen niet meer beantwoord worden.
Let op: na 15 minuten wordt u automatisch uitgelogd. Als uw bericht nog niet is verzonden, wordt deze niet automatisch opgeslagen. Houdt u hier rekening mee.
Privacy
De e-consults worden opgeslagen in uw elektronische patiëntendossier (EPD). Alle zorgverleners die bij uw behandeling betrokken zijn, hebben toegang tot de gegevens in uw dossier. Zodat zij hun werkzaamheden kunnen verrichten. Dat betekent dat zij ook de e-consults kunnen lezen.

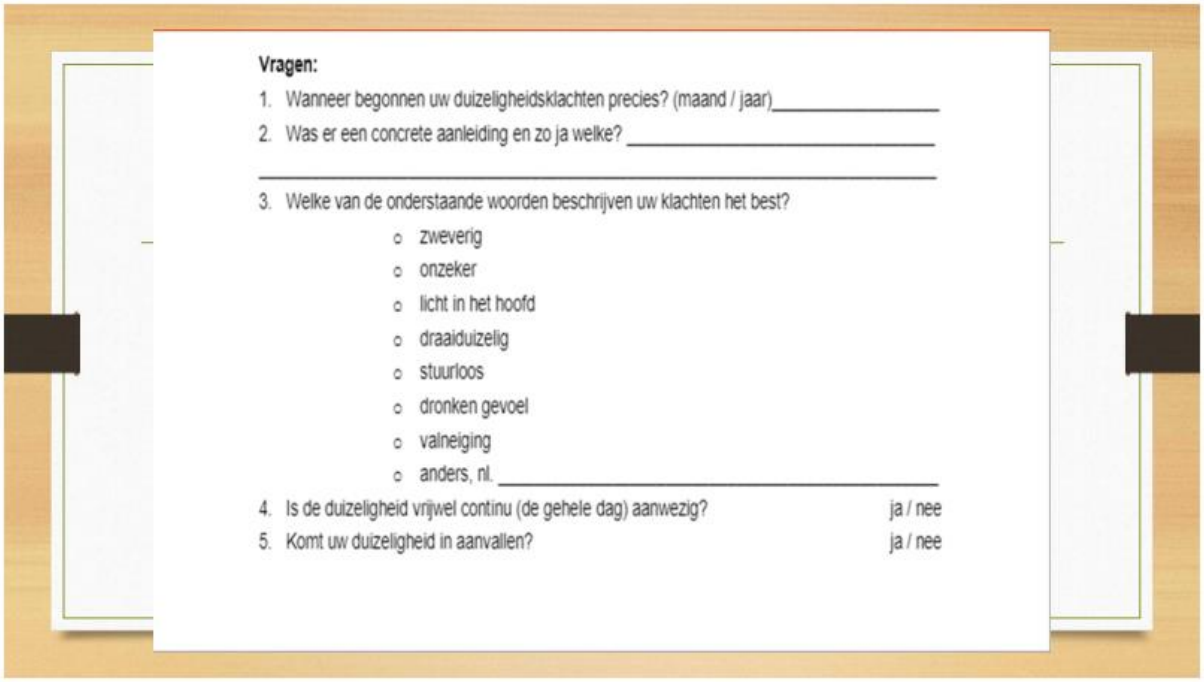

E-consult
Berichten doorzoeken
Opstellen
Primair
Sociaal 41 nieuw
YouTube
Reclame 4 nieuw
Course Hero
Inbox
Met ster
Gesnoozed
Belangrijk
Verzonden
Reyan
0,01 GB (0%) van 15 GB gebruikt
Beheren
Voorwaarden · Privacy · Programmabeleid
Laatste accountactiviteit: 12 dagen geleden
Details


E-Consult
Berichten doorzoeken
Opstellen
Primair
Nieuw bericht
Aan Type hier de naam van u Arts
Cc Bcc
Onderwerp schrijf hier het onderwerp
schrijf hier uw vraag
Inbox
Met ster
Gesnoozed
Belangrijk
Verzonden
Reyan
0,01 GB (0%) van 15 GB gebruikt
Beheren
Verzenden


E-consult
Berichten doorzoeken
Opstellen
Inbox
Met ster
Gesnoozed
Belangrijk
Verzonden
Reyan
Primair
0,01 GB (0%) van 15 GB gebruikt
Beheren
Hoofdpijn elke ochtend
Aan Dokter A
Cc Bcc
Hoofdpijn elke ochtend
Beste Dr. A
Ik heb al twee ochtenden hoofdpijn. Is dit normaal?
Groetjes,
Mvr. B
Verzenden
Opgeslagen


Vragenlijst





Vragen:

1. Wanneer begonnen uw duizeligheidsklachten precies? (maand / jaar)_____
2. Was er een concrete aanleiding en zo ja welke? _____
   _____
3. Welke van de onderstaande woorden beschrijven uw klachten het best?
   - zweverig
   - onzeker
   - licht in het hoofd
   - draaiduizelig
   - stuurloos
   - dronken gevoel
   - valneiging
   - anders, nl. _____
4. Is de duizeligheid vrijwel continu (de gehele dag) aanwezig? ja / nee
5. Komt uw duizeligheid in aanvallen? ja / nee

6. Hoe vaak hebt u in totaal een aanval van duizeligheid gehad? _____ keer
7. Is de duizeligheid zowel continu als aanvalsgewijs aanwezig? ja / nee
8. Hoe lang duurt een aanval gemiddeld? _____ minuten / uren / dagen
9. Hoe vaak treden de duizeligheidsaanvallen op? _____ keer per dag
   _____ keer per maand
   _____ keer per jaar
10. Heeft u tijdens uw duizeligheid last van draaigevoelens? ja / nee
    Zo nee, ga door met vraag 12
    Zo ja, welke kant om? naar links / naar rechts
11. Heeft u bij deze draaigevoelens het idee dat u zelf draait of draait uw omgeving?
    ik draai zelf / omgeving draait
12. Als u duizelig bent, heeft u dan het gevoel te vallen? ja / nee
    Zo nee, ga door met vraag 14
    Zo ja, naar welke kant? naar links / rechts / voren / achteren
13. Heeft u dit gevoel te zullen vallen vooral als u staat of loopt? ja / nee
14. Gaat de duizeligheid gepaard met misselijkheid en / of braken? ja / nee
15. Waardoor wordt – volgens u – uw duizeligheid veroorzaakt? _____