

Care for vulnerable elderly in MST

The preferences of primary care professionals for a diagnostic day centre in MST for vulnerable elderly patients (70+)

Master Thesis

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I hope you will enjoy reading my thesis

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Abstract

The ageing population has a major impact on the Dutch healthcare system. The increasing number of elderly people in the service area of Medisch Spectrum Twente (MST) is also noticed by the hospital. Objective of MST is to determine the possibility to put a diagnostic day centre (DDC) into use. The research focusses on the preferences of the primary care professionals since they have a controlling role (over the patients in the Dutch healthcare system). The objective of the research is to substantiate how a DDC, as an innovation, can be implemented in MST, given the preferences of primary care professionals. Data of 53 primary care professionals in the service area of MST is collected by means of a survey. Also, data of three Dutch hospitals regarding their organization of geriatric care is collected. For 42% of the care needs of vulnerable elderly, there is no preferred action identified. Therefore, it can be concluded that there is a lack of direction in the current referral and consultation behaviour of primary care professionals. For 58% of the care needs the primary care professionals prefer a referral to the DDC in a future situation. For these care needs, it can be expected that they will be referred to the DDC when taken into use in MST. On top of that, for only 11% of the care needs the primary care professionals prefer the same action as in the current situation. These results confirm that there is a need for the implementation of a DDC in MST. In this research there are six factors of a DDC identified that could influence the rate of adoption, thus the decision of the primary care professional to adopt or reject a DDC (Rogers, 2003). The factors are waiting time, visits, perceived need, collaboration, referral and feedback. All factors are perceived as important by the primary care professional and should be taken into account when implementing a DDC in MST. *Visits* will least influence the decision of primary care professionals to adopt a DDC. *Collaboration* and *waiting time* will influence this decision the most, followed by *referral* and *feedback*. These four factors should be taken into consideration when the DDC is taken into use in MST. Collaboration between primary and secondary care, especially direct communication, is most highlighted as a precondition by both the primary care professional as by the Dutch hospitals. Short waiting times is also frequently indicated as a precondition for the implementation of a DDC in MST. On top of that, preconditions for the implementation of a DDC named are the ease of referral and clarity of feedback, which are interrelated according to the Dutch hospitals. This research concludes with a number of recommendations for MST based on the findings, which are described in a plan of action.

Keywords: vulnerable elderly, diagnostic day centre, integrated care, diffusion of innovation, implementation.

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List of abbreviations

Abbreviation	Concept	In Dutch
DDC	Diagnostic day centre	Diagnostisch dagcentrum (DDC)
DOI	Diffusion of Innovation	Verspreiding van innovation
ECMS	Electronic consultation	Eenmalig consult medisch specialist (ECMS)
ED	Emergency department	Spoedeisende hulp (SEH)
GP	General practitioner	Huisarts (HA)
GOC	Geriatric outpatient clinic	Polikliniek geriatrie
GS	Geriatric specialist	Specialist ouderengeneeskunde (SO)
MST	Medical Spectrum Twente	Medisch Spectrum Twente
OC	Outpatient clinic	Polikliniek
Q&S	Quality & Safety	Kwaliteit & Veiligheid (K&V)
RTA	Regional transmural agreement	Regionaal transmurale afspraak (RTA)
TCMS	Telephone consultation	Telefonisch consult medisch specialist (TCMS)
THOON	Twentse general practitioner company East Netherlands	Twentse huisartsen onderneming Oost Nederland

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1. Introduction

The average age of the Dutch population is rapidly increasing, which means that the population is ageing. The main causes for the ageing population are the ‘baby boom’ after the Second World War until 1960, the decline of fertility rates since 1970, and the rise of the life expectancy (Boot, 2013; Lucht, 2010; Schols, 2010). In 2016, it was predicted that 14% of the total Dutch population would be over 70 years in 2020, and even 20% in 2040 (CBS, 2016). This means that the number of people over the age of 70 will increase from 2.4 million in 2016 to 3.7 million in 2040 (CBS, 2016). The increase of the number of elderly people also locally impacts the Twente region. It is expected that compared to the rest of the Netherlands relatively more elderly people will live in Twente in 2040 (Boot, 2013). In 2016, the prediction was made that 15% of the inhabitants in Twente will be over 70 years in 2020, and 22% in 2040 (PBL, 2016).

The ageing population has a major impact on the Dutch healthcare system, and it is thus an important item on the agenda of the policymakers of the Dutch ministry of health, welfare and sport (Campen, 2011; Schippers, 2016; Schols, 2010; VWS, 2018 June). Since 1980 it is the trend that elderly people live at home as long as possible, instead of spending their old days in care– or nursing homes (VWS, 2018 June). Improvements in treatment options for diseases and government policy are focussed on allowing elderly people to live longer at home (Verlee, 2017; VWS, 2018 June). The increasing number of elderly people leads to changes in care: an increased need for complex care, more elderly with multimorbidity, and more hospital admissions. Being sick at an older age commonly means that several (chronic) diseases occur simultaneously (multimorbidity) (Boot, 2013). In general, elderly more often face (complex) physical, psychological and/or social deficits compared to younger people, therefore elderly make more use of healthcare services (Boot, 2013; Campen, 2011; Lucht, 2010).

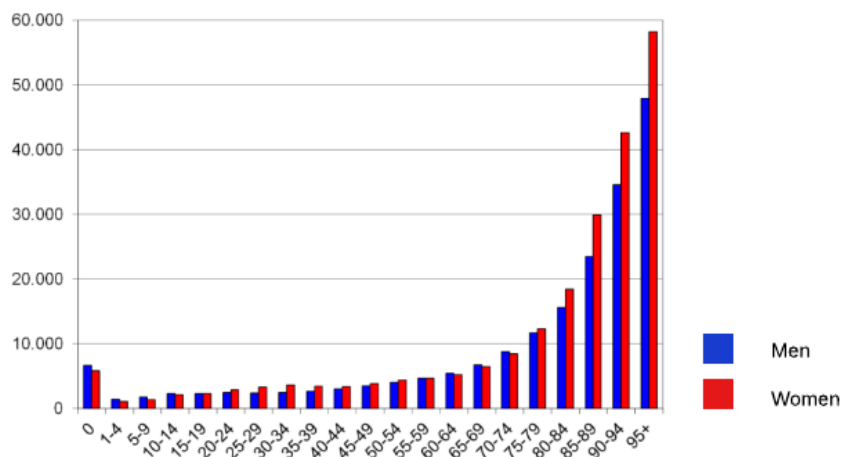


Figure 1: Healthcare expenses per capita in the Netherlands in 2016, age in years, expenses in € (Based on Bakker, 2010)

Figure 1 provides an overview of the mean health expenses per capita per age in the Netherlands. The figure shows that health expenses are rising strongly with age (Bakker, 2010). The rising costs can be explained by the number of elderly people that visit the Emergency Department (ED), and the increase of elderly patients admitted to the hospital in general (Bakker, 2010; Kousemaeker, 2017). Elderly people visit the ED more frequently than younger people (see figure 2, left). Estimated is that in 2040, 1.1 million people over the age of 75 will visit the ED, compared to 390.000 in 2016 (VWS, 2018 April). In 2016, 42% of the people over the age of 75 has been admitted to the hospital after visiting the ED (see figure 2, right). These changes create the need for an integral approach of care. An integral approach means coordinated collaboration between all care professionals involved with the patient: ‘the right care, on the right place, at the right time’ (Lucht, 2010; Verlee, 2017). Furthermore, to

reduce the pressure on the ED and the subsequent costs, it is desirable to provide care for elderly people within the primary care as much as possible (NVZ, 2016).

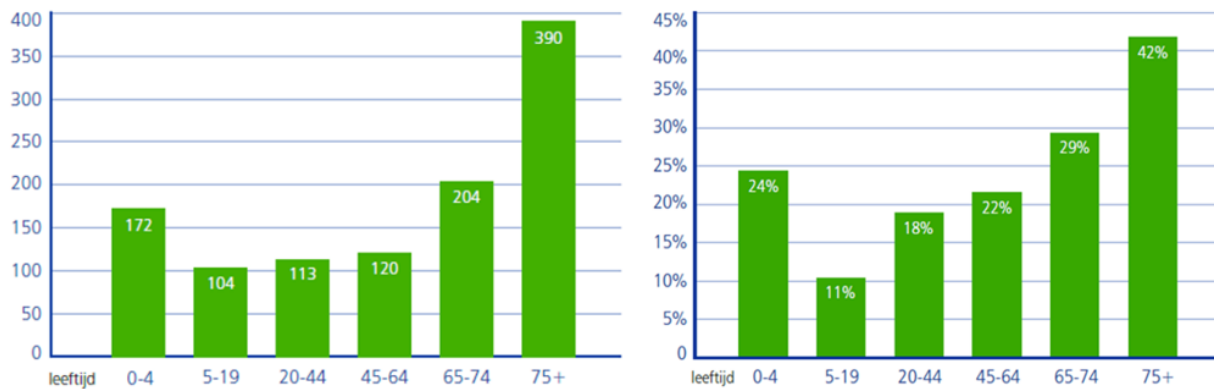


Figure 2: (left) Number of ED visits per 1000 inhabitants, per age group in 2016. (right) Percentage of hospital admissions after ED visit per age group in 2016 (Source: VWS, 2018 April)

Medisch Spectrum Twente (MST) noticed the impact of the increasing number of elderly people in their service area. Hence, the increase of elderly is an item on the strategic agenda (described in *Redesign Primary Process*, 2017). This policy report stated that the department of *internal medicine and geriatrics* must develop a hospital-wide vulnerable elderly care policy (Wymenga, 2018). This resulted in a plan of action, described in '*Vulnerable Elderly Policy MST*' (Dutch: Kwetsbare Ouderenbeleid MST). One of the objectives of this policy is to determine the possibility to implement a Diagnostic day centre (DDC) for vulnerable elderly (70+) in MST.

In the vulnerable elderly policy, the DDC is described as a one-off consultation option integrated in the current geriatric care of MST. Primary care professionals (general practitioner (GP) and geriatric specialist¹ (GS)) could refer or consult specific *care needs* of vulnerable elderly to the DDC. The care need of the patient is defined as the '*need for care expressed by the client or their social environment*' (Zorg en Welzijn thesaurus, 2019). Objective of a DDC in MST is to contribute to an integral approach of care, by assessing the care need of the patient during one hospital visit (see section 2.4.; Wymenga, 2018). Informal communication between internist oncologist of MST, advisor Quality & Safety (Q&S) of MST, and two GPs showed that these GPs have a positive attitude towards the use of a DDC in MST.

1.1. Research questions

Since primary care professionals can refer patients to secondary care or consult medical specialists in secondary care, they have a controlling and monitoring role in the Dutch healthcare system. Therefore, primary care professionals have a major influence on the course of care of the patient (see section 2.2.; Boot, 2013). Hence, this research focusses on the perspective of primary care professionals regarding the DDC in MST. The objective of the research is to substantiate how a DDC can be used in MST, given the preferences of primary care professionals. Since the research focuses on *how* the DDC can be put into use in MST, the term *implementation* is used in the formulation of the main research question (see chapter 3).

¹ In Dutch known as 'specialist ouderengeneeskunde' or 'SO'

To investigate the preferences of primary care professionals regarding the implementation of the DDC in MST, the following research question is formulated:

‘What are the preferences of primary care professionals for the implementation of a diagnostic day centre (DDC) for vulnerable elderly patients (70+) in Medisch Spectrum Twente (MST)?’

Sub-questions:

1. In what way do primary care professionals currently refer and/or consult the care needs of vulnerable elderly (70+) in the service area of MST?
2. In what way would primary care professionals like to refer and/or consult the care needs of vulnerable elderly (70+) in the service area of MST in a future situation with a DDC?
3. Which factors of a DDC are perceived important by primary care professionals in the service area of MST?
4. What are preconditions for the implementation of a DDC in MST according to primary care professionals?
5. Which recommendations emerge from the experiences of other Dutch hospitals regarding the organization of geriatric care?

Five sub-questions are formulated to answer the research question. The first sub-question is aimed at providing insights into the current referral and consultation behaviour of primary care professionals. This provides knowledge on which refer or consult action primary care professionals choose regarding the care needs of vulnerable elderly (70+). The second sub-question is aimed at providing insights into the future referral and consultation behaviour of primary care professionals. This provides knowledge on which way the primary care professionals would like to refer or consult the care needs of the vulnerable elderly (70+) if there was a DDC in MST. The third sub-question focuses on the importance of factors of the DDC as perceived by the primary care professionals. The factors of the DDC were identified during a focus group based on the Diffusion of Innovation theory of Rogers (2003). This theory describes the relation between the perceived characteristics of an innovation and the rate of adoption (see section 3.3.). The fourth sub-question is aimed at describing the preconditions according to primary care professionals for the implementation of a DDC in MST. Finally, the fifth sub-question describes the experiences of Dutch hospitals regarding the organization of geriatric care obtained during informal conversations. Based on knowledge derived from the five sub-questions, recommendations for MST have been formulated described in an action plan.

The relevance of this research is the insights it provides regarding the current state of the vulnerable elderly (70+) policy of MST. There is no research conducted regarding the perspective of primary care professionals on innovations in the geriatric care setting, such as the DDC. This research will provide information to substantiate whether and how a DDC for vulnerable elderly (70+) can be implemented in MST in accordance with primary care professionals in the service area of MST.

2. Care for vulnerable elderly (70+) in the service area of MST

This chapter provides a general overview of the context of the research topic. The research topic is the care for vulnerable elderly (70+) in the service area of MST. In addition, the idea of a DDC in MST is described. But first, the concepts of *elderly* and *vulnerability* are discussed.

2.1. Concepts

2.1.1. Elderly

There is no generally accepted agreement on the age at which a person is considered as *elderly*. Being elderly is often associated with the age at which one has the right to receive pension benefits (WHO, 2002). Researchers and policymakers in the healthcare sector mainly focus on people above the age of 65, 70 or 75 years. The age criterion in this research of 70+ is deliberately chosen because it aligns with the performance indicators in the *Safety Management System* of the Healthcare Inspectorate (Dutch: IGJ). The advice of IGJ for Dutch hospitals is to focus on people above the age of 70 years in their vulnerable elderly policies. However, IGJ also underscores that people below the age criterion of 70 years could also fall under the vulnerable category (VMS, 2008).

2.1.2. Vulnerability

Vulnerability is seen as a collection of various risk factors. Campen (2011) formulated the following wide definition: ‘*a process of accumulating physical, psychological and/or social deficits in the functioning that increase the chance of negative health outcomes*’ (p. 45). The concept of vulnerability differs from the concept of multimorbidity by additionally emphasizing psychosocial problems (VMS, 2008; Wymenga, 2018). Based on this definition, it is estimated that the number of vulnerable elderly (65+) will increase from 700.000 in 2010 to 1 million in 2030² (Campen, 2011).

2.2. Integrated care

Geriatric care is comprehensive and consists of multiple involved actors, actions and collaborations. The care is based on the common responsibility of different care professionals (Boot, 2013). Administrative developments in the 1980s led to cooperation and cohesion in the Dutch healthcare system. These changes resulted in a more accurate job description of the general GP, physician, nurse and other healthcare professionals (Boot, 2013). Because of the improved job descriptions, it is better possible to call in the *right professional* at the *right time* (Boot, 2013; Verlee, 2017). The concept of integrated care was introduced in the 1990s. The common goal of the actors is to organize the *right care* for patients. Integrated care is offered based on the needs of the patient and is provided in accordance to agreements about coordination and communication between primary- and secondary care professionals (Leichsenring, 2004).

2.2.1. Primary care professionals

The primary care consists of GPs, GSs and nurse practitioners (Schols, 2010). In the Netherlands, the *general practitioner* (GP) is the first, directly accessible, contact for people with a care need (Mackenbach, 2012; Schers, 2009). GPs can refer their patients to secondary care, they regulate the access and therefore are called *gatekeepers* (Bakker, 2010; Schers, 2009). The GP is informed on the physical, psychological and social condition of the patient, and is thus central in identifying the vulnerability of elderly patients in their practice (Boot, 2013; Verlee, 2017). The *geriatric specialist* (GS) is also part of the primary care and is specialized in care for elderly patients. The GS was originally employed by care- and nursing homes. However, as elderly people live longer at home the

² The data of Campen (2011) is published in the age category of 65+. As a result, this estimation is not available for the age category of 70+.

expertise of the GS is nowadays also accessible for elderly outside nursing homes (Boot, 2013). The GS can be consulted as an expert by the GP. Examples are geriatric assessments, polypharmacy assessments, and the organization of multidisciplinary collaboration (Verlee, 2017). The *nurse practitioner*³ is responsible for the planning and organization of the care for a specific patient group (Boot, 2013). The nurse practitioner organizes consultation hours and home visits to monitor the well-being of the elderly in the GP practice. Not all GP practices have an nurse practitioner for the elderly patients. Furthermore, the work agreements differ between the GP practices as to how and when the nurse practitioner consults and engages the GP (Verlee, 2017).

2.2.2. Secondary care professionals

The secondary care consists of medical specialists and (nurse) specialists. As mentioned, the GP and GS can refer patients to medical specialized care, provided in hospitals. Hospitals consist of different elements, such as the clinic, the outpatient clinic (OC), and the ED. At the clinic, patients can be admitted for several days for observation or treatment. The OC is focused on the diagnosis and (short) treatment of diseases for which the primary care professional lack sufficient expertise and resources (Boot, 2013; Mackenbach, 2012). The organization of the geriatric care differs per hospital. A distinction can be made between two different approaches. In the first approach, hospitals have both a geriatric clinic and a geriatric OC (GOC). In the second approach, hospitals have a GOC and a geriatric consultation team. This consultation team can be consulted when vulnerable elderly patients are admitted, but there is no geriatric clinic for the admission of geriatric patients. MST deliberately opted for the second approach. Therefore, MST does not have a geriatric clinic for the admission of vulnerable elderly. The reason for this choice is that elderly people are spread throughout the different specialisms, and therefore geriatric expertise must be available all over the hospital (Wymenga, 2018).

2.3. Processes of geriatric care

Two processes within the geriatric care are of interest in this research: referral and/or consultation and the visit to the GOC.

2.3.1 Referral and consultation

The first process consists of the referral and/or consultation of care needs of vulnerable elderly (70+) (figure 3). *Referral* means that the patient with a specific care need is transferred from the referring professional to another professional, usually a medical specialist in secondary care. The medical specialist becomes the main practitioner for the specific care need only until the patient is transferred back to the referring professional. The referring professional is usually located in primary care, but can also be a medical specialist (Verlee, 2017). In some cases, it is not necessary to refer the patient, but it may be desirable to acquire medical knowledge of a specialist. In that case, the main practitioner can *consult* another professional. The consulting professional remains the main practitioner and thus responsible for the patient. This is in contrast to the referral, in which the referring professional (partially) transfers the responsibility for the patient (Boot, 2013; Trijn, 2017)

³ In Dutch known as ‘praktijkondersteuner huisartsenzorg’ or ‘POH’.

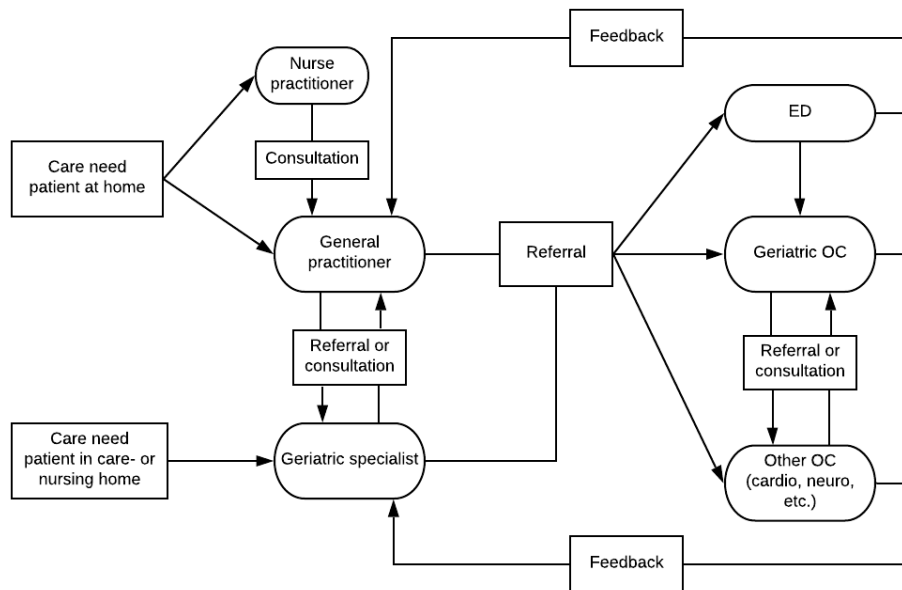


Figure 3: Overview of referral and consultation actions of primary care professional for care needs of vulnerable elderly

2.3.2. Geriatric outpatient clinic

The second process is that of the visit of the patient to the GOC. This includes the diagnosis or (short) treatment in the hospital at the OC (Figure 4). The figure, based on *Vulnerable Elderly Policy MST*, provides a description of two possible schedules in MST in the current situation (Wymenga, 2018). The visit to the GOC consists of various steps. During the anamnesis, the patient tells the care professional about the history and circumstance of the illness or condition. During the hetero anamnesis, the informal caregiver provides their view on the situation of the patient. These are both conducted by the geriatric physician. The cognitive tests are short questionnaires, conducted by the doctor's assistant on the indication of the geriatric physician (tests on dementia, innutrition and depression). Consecutively, the assistant and the physician carry out a physical examination including blood pressure, weight, length and other physical internal and neurological examination. The visit at is concluded with a final discussion of the results with both patient and informal caregiver. This is usually preceded by a multi-disciplinary discussion with all involved professionals.

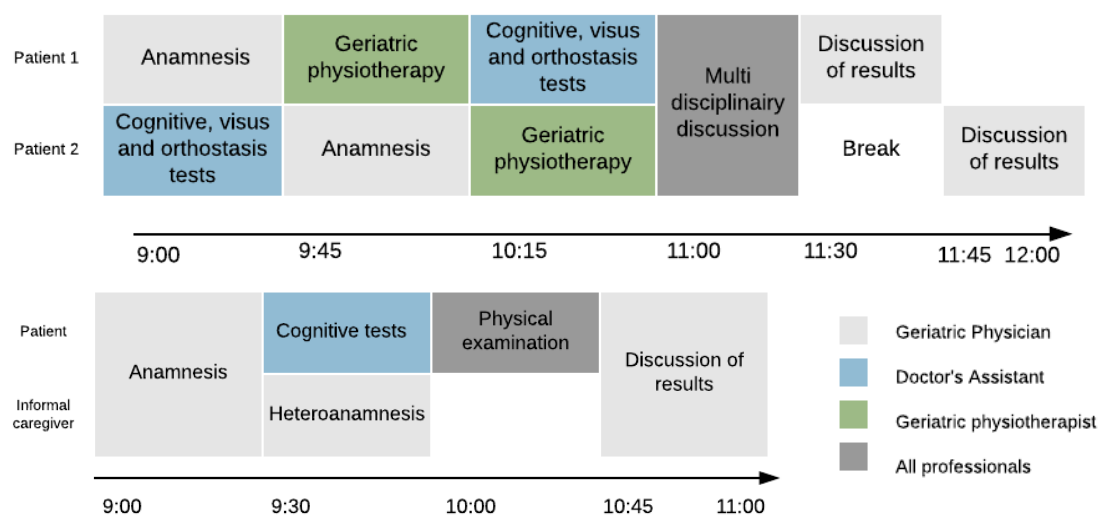


Figure 4: Description of GOC visit. Top figure: two patients in the morning with mobility problems. Bottom figure: one patient in the morning with cognitive problems (based on Wymenga (2018)).

2.4. Diagnostic day centre (DDC)

The idea of the DDC is described in the policy of Wymenga (2018). The DDC could be set up as an additional process within the current organization of geriatric care in MST. As shown in figure 4, different processes can currently be distinguished (Wymenga, 2018). When MST takes a DDC into use, primary care professionals could *refer* vulnerable elderly patients with a targeted (somatic) care need to this centre for a one-off consultation. In addition, primary care professionals can *consult* the geriatrician without referring the patient through electronic consultation and telephone consultation (respectively: ECMS and TCMS). These consultation options can be used to support the diagnosis made and in case of doubt if a referral is necessary (MST, 2016). Figure 5 gives a representation of the process as intended by the vulnerable elderly policy of Wymenga (2018). The goal of the DDC is to assess the care needs of vulnerable elderly (70+), by carrying out additional diagnostic tests to that the primary care provide. The controlling and monitoring function on the patient's care path remain with the primary care professional. By performing the necessary tests in one day, the number of hospital visits of the patients could be limited. In addition, early clarification of the care needs of vulnerable elderly (70+) could potentially reduce the high pressure on the ED, and thereby the healthcare expenses. This way the DDC could contribute to an integral approach of geriatric care (Verlee, 2017).

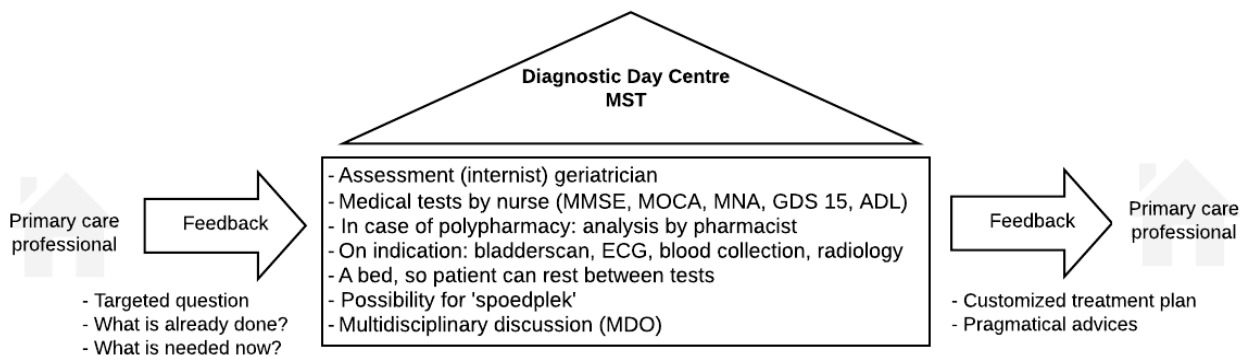


Figure 5: Process of DDC as intended in the vulnerable elderly policy (based on Wymenga (2018)).

3. Theory

This chapter introduces and describes the theoretical concepts as a starting point of this research. The DDC can be seen as innovation within the setting of the current geriatric care of MST. Therefore, we use the Diffusion of Innovation (DOI) theory of Rogers (2003) to answer the research questions. The DOI is widely recognized to provide an understanding of the diffusion of innovations and explains why some innovations are successfully implemented by units of adoptions and others not (Rogers, 2003). This research is aimed at determining the preferences of primary care professionals, by identifying and assessing factors of a possible DDC in MST as perceived by this group (Rogers, 2003). First, the concept of innovation is discussed, after which the DOI theory is introduced in light of this research.

3.1. Definition of innovation

In literature, various definitions are given to the concept of innovation. The meaning of the specific innovation can thus be ambiguous, depending on the definition. The first definition of innovation stressed the *novelty* of innovation as something that is not been done before (Crossan et al., 2010). Since it is almost impossible to do two things identically, every change could be considered as innovation by this definition. The definition of Rogers (2003) is less inclusive: *'an idea, practice, or object that is perceived as new by an individual or other units of adoption'* (p.11, Rogers, 2003). An idea that is already known in a certain context can still be an innovation if a unit of adoption considers it new. The definition of Rogers (2003) aligns with the definition for *health innovation* of World Health Organization (WHO): *'new or improved health policies, systems, products (...) to add value in the form of improved efficiency, effectiveness, quality'* (WHO, n.d.). Rogers' definition of innovation is used as the basis for this research when referring to the DDC as an innovation. The use of a DDC is a new approach in the context of providing care to vulnerable elderly in the service area of MST.

3.2. Diffusion of Innovation theory

The DOI theory of Rogers (2003) is widely recognized and used by many scholars (Greenhalgh et al., 2008). The diffusion of an innovation is *'the process by which an innovation is communicated through certain channels over time among the members of a social system'* (p.10, Rogers, 2003). DOI focuses on the relation between the spread of the new idea and four elements: channels, time, social system, and attributes of the innovation. The theory can help explain why and how innovation spread through a social system. In Rogers' definition, the members within the social network are the units of adoption. The adopting units can be individuals, but it can also be organizations, such as a hospital (MST) or a venture (THOON⁴ or Tussen de Lijnen⁵) (Rogers, 2003). Since the focus of this research is on the preferences of individual primary care professionals, the unit of adoption is primary care professionals.

3.2.1. The innovation-decision process

Rogers (2003) explains the diffusion of innovation using the five stages of the innovation-decision process (figure 6). The innovation-decision process has been criticized for being a linear process (Fitzgerald et al., 2002). However, it can be seen as a dynamic process as the unit of adoption can take one or more steps back during any stage of the process. The length of the process in terms of time can vary per unit of adoption. Also, at every stage during the process the unit of adoption can reject the innovation (Rogers, 2003). Three types of decision-making are identified: optional, collective and authority (Rogers, 2003). With optional decision-making, the individuals are free making their own

⁴ THOON is the Twentse General Practitioner Company East Netherlands

⁵ Tussen de Lijnen is an organization that establishes the cooperation between primary care professionals in the service area of MST and healthcare professionals in MST.

choice to adopt or reject the innovation. With collective decision-making, the will of the social system is imposed on the individual. With authority decision-making, the individuals have few or no input. The decision-making in this research is optional. Primary care professionals are free in making the choice to adopt the DDC and there is no authority that can impose this decision on them.

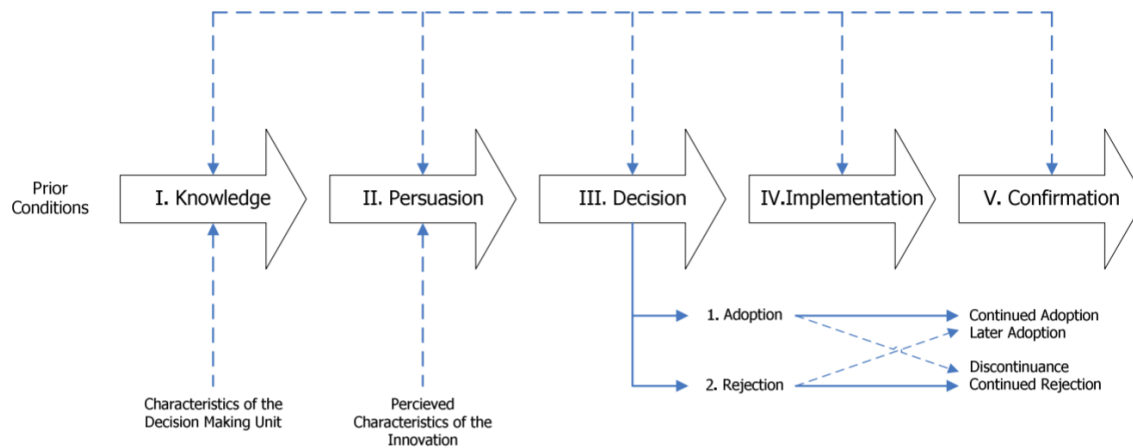


Figure 6: Model of the five stages in the Innovation-Decision Process (Source: Rogers, 2003).

3.2.2. The five stages

During the first stage, *knowledge*, the adopting unit is exposed to the innovation. A distinction can be made between a passive and active approach. When the adopting unit is unaware of their need for an innovation, one can speak of a passive approach. One speaks of an active approach when the adopting unit actively seeks information after perceiving a need for innovation. In health care, the step of knowledge is often passive. Healthcare innovations are less likely to be promoted through traditional marketing channels. Hence, adopting units within the healthcare sector rely more on knowledge acquired through their social networks (Worum, 2014). During the second stage, *persuasion*, the unit of adoption forms an attitude towards the specific innovation. In this stage, the perceived attributes of the innovation are taken into account by the adopting unit. Rogers (2003) makes a distinction between five main groups of attributes: relative advantage, compatibility, complexity, trialability, and observability (see section 3.3.). During the third stage, *decision*, the adoption unit makes a decision to adopt or reject the innovation. The adopting unit weights the advantages and disadvantages of using the innovation, based on the information gathered in the previous steps. During the fourth stage, *implementation*, the adopting unit puts the innovation into use. The implementation usually follows the decision stage directly. Implementation differs from the previous stage since the decision to adopt is essentially different from actually putting the innovation into practice. In the final stage, *confirmation*, the innovation becomes a routine (Rogers, 2003; Sharma & Romas, 2011).

3.3. Perceived attributes of innovation

The perceived attributes of the innovation are taken into account during the second stage of the innovation-decision process (see figure 6). This information influences the continuation of the process, including the decision to adopt and subsequently implement the innovation. Rogers (2003) stated that the rate of adoption among the adopting units is influenced by how they perceive the attributes of the innovation. Rogers (2003) distinguished five attributes: *relative advantage*, *compatibility*, *complexity*, *trialability*, and *observability* (see figure 6, II. persuasion). According to Berwick (2003) and Tornatzky & Klein (1982), the three attributes with the most consistent significant relationship to the rate of adoption are relative advantage, compatibility and complexity (see figure 7). To ensure that all attributes have a positive relationship to the rate of adoption, complexity is replaced in this research by an antonym: *ease of use*.

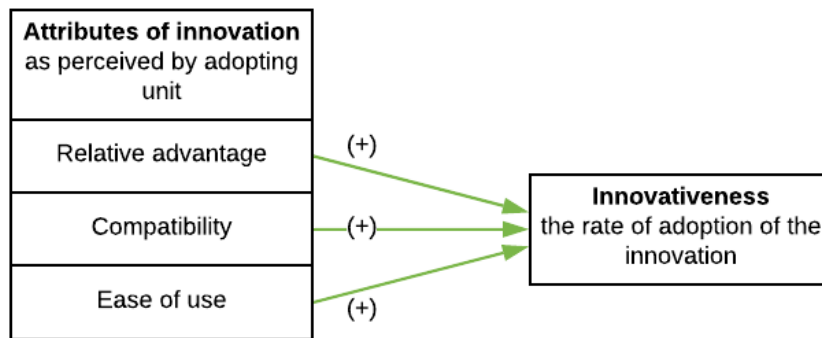


Figure 7: The relation between the perceived attributes of innovation and rate of adoption (based on Rogers, 2013 and Tornatzky & Klein, 1982)

3.3.1. Relative advantage

The *relative advantage* is the degree of the perceived benefit of the change (Rogers, 2003; Berwick 2003). The core of relative advantage is not the actual advantage the innovation would bring, but rather how the unit of adoption perceives the innovation as advantageous. The expectations of the potential users are thus an important factor in the decision to adopt a new idea (Carlfjord et al., 2010). More perceived relative advantage leads to a higher adoption rate (Greenhalgh et al., 2008). The degree of relative advantage can be determined in various ways, depending on the context. For example, economic factors (fewer costs) and performance factors (efficiency) (Rogers, 2003)

3.3.2. Compatibility

Compatibility is the degree to which the innovation is perceived to be consistent with prevalent values, norms and needs of the potential adopters (Rogers, 2003). Literature validates that compatibility with the perceived need for the innovation, and existing agreements and routines are important factors (Carlfjord et al., 2010; Greenhalgh et al., 2008). For example, if care professionals do not use a new guideline, it could be explained by the fact that the innovation is not compatible with their existing routines (Berwick, 2003).

3.3.3. Ease of use

Ease of use is the degree to which the innovation is perceived as easy to use by the user (Rogers, 2003). Ideally, innovation would make the work of the user easier (Greenhalgh et al., 2008). Some innovations are readily understood by the members of the social system. The *ease of use* is also connected to compatibility as it relates to what extent the innovation differs from the current situation. If the innovation is similar to the current situation, users are more likely to understand and use the innovation more easily (Carlfjord et al., 2010; Greenhalgh et al., 2008).

3.4. Connecting theory to research

This research is aimed at the preferences of primary care professionals for the DDC as an innovation. DOI can help understand why and how innovations diffuse. One of the elements that influence the diffusion described by Rogers (2003), is the attribute of the innovation as perceived by the user. Based on the three attributes (relative advantage, compatibility and ease of use), factors will be defined that could promote the rate of adoption. According to the decision-innovation model, the decision to adopt is followed by the implementation of the innovation. Defining the factors of the DDC and their importance according to primary care professionals will contribute to answering the research question. Further description of the determination of the factors in this context can be found in chapter 4.

4. Methodology

A survey was conducted to answer the first four sub-questions. The survey is specifically designed to gain insight into the preferences of primary care professionals for a DDC in MST. The design of the survey is based on a focus group, reports of other hospitals, and opinions of experts. The theory described in chapter 3 was used to code the transcript of the focus group. First, the process of designing the survey is discussed in more detail. Also, the data collecting and analysis regarding the survey are discussed. The fifth sub-question has been answered with informal conversations with other Dutch hospitals. Section 4.3. describes the process of these informal conversations. Finally, validity and ethical issues are discussed.

4.1. Design of survey

The survey was drawn up in collaboration with the internist geriatrician, internist oncologist and advisor Q&S of MST.

4.1.1. Care needs of vulnerable elderly

The first two sub-questions target the current and future referral and consultation behaviour of primary care professionals. First, the different care needs of vulnerable elderly (70+) needed to be identified to answer these sub-questions. Care needs were identified using the Regional Transmural Agreement (RTA) of Trijn (2017). The RTA is a regional organizational agreement made by stakeholders of the geriatric care in the region of Utrecht (Trijn, 2017). The RTA is aimed at harmonizing the primary and secondary care regarding the diagnostics, treatment, referral and consultation of vulnerable elderly in the region. Hereby the focus is on providing the right care, on the right place, at the right time. The central idea of the RTA was to determine which care can be provided by the primary care professional, and which expertise can one best use if consultation or referral is needed? The RTA distinguished four categories of care needs of vulnerable elderly: physical deterioration, mobility problems, delirium and dementia (see table 1). In total nineteen care needs of vulnerable elderly (70+) are listed in table 1.

Table 1: Care needs of vulnerable elderly categorized in the four categories (based on Trijn, 2017)

Category	Care need of vulnerable elderly (70+)
Deteriorations	1. Unclear cause of the deterioration.
	2. Deterioration with multimorbidity and/or polypharmacy.
	3. Unexpected fast deterioration.
	4. Chance of recovery, wish for diagnostics of patient or family.
	5. Misunderstood dyspnoea, infection, dehydration, heart failure, weight loss or other deterioration.
Mobility	1. Unclear cause of repeated falling.
	2. Rapid decline of mobility.
	3. Complex fall-related problem with risk factors (incl. osteoporosis).
	4. Unclear cause fall problems in combination with black-out.
Delirium	1. Insufficient research, treatment and/or care options or safety in the home situation.
	2. Uncertainty about the cause of the confusion.
	3. Insufficient effect of current treatment.
Dementia	1. Diagnosis of the existence of dementia.
	2. Serious behavioural problems and/or psychiatric illness.
	3. Significant increase in cognitive disorders.
	4. Recent head injury.
	5. Unexplained micturition or urinary incontinence.
	6. Neurological failure.
	7. Wish of patient to treatment with (experimental) medication.

4.1.2. Factors of the DDC

Second, the experiences and insights of the stakeholders involved in the geriatric care in MST were gathered to identify factors of a possible DDC in MST. These factors formed the basis in the survey to answer sub-question 3, which covers the importance of factors of a DDC as perceived by primary care professionals. A semi-structured focus group was organized with five involved professionals, a moderator and the researcher on the 27th of August 2018. The information shared in the focus group was combined into factors, which are then placed under one of the main perceived attributes of innovation in the theory of Rogers (2003): relative advantage, compatibility and ease of use (detailed description in section 3.3.).

The participants were professionals working at organizations involved in the geriatric care in the service area of MST (THOON, Tussen de Lijnen and MST). Table 2 gives an overview of the participants and the organization they work for. The participants have been chosen in consultation with the advisor Q&S of MST. The topic list (Appendix A) ensured that all points were discussed during the semi-structured meeting.

Table 2: List of the focus group participants with name of organization

Profession	Organization
Advisor Quality & Safety (moderator)	MST
Business manager	MST
General practitioner	THOON
General practitioner and coordinator primary/secondary care	Tussen de Lijnen
Internist physician and coordinator primary/secondary care	Tussen de Lijnen and MST
Internist oncologist	MST
The researcher	-

All seven persons invited were present during the meeting. The moderator encouraged discussion between the participants to allow new input (Baarda, 2009; Babbie, 2015). The meeting lasted sixty minutes. In accordance with the wishes of the participants, the focus group was not recorded. Instead, notes were made during the meeting by the researcher. The notes were written out immediately after the meeting, while the content was still fresh in the memory. Relevant text fragments were highlighted using an open coding technique and were assigned to labels. This means that the labels were not predetermined (Baarda, 2009). Six labels are assigned to the relevant text fragments: waiting time, visits, need, collaboration, referral and feedback (see Appendix B). These six labels were then placed under one of the attributes of Rogers (2003). Figure 8 gives a schematic overview of this information.

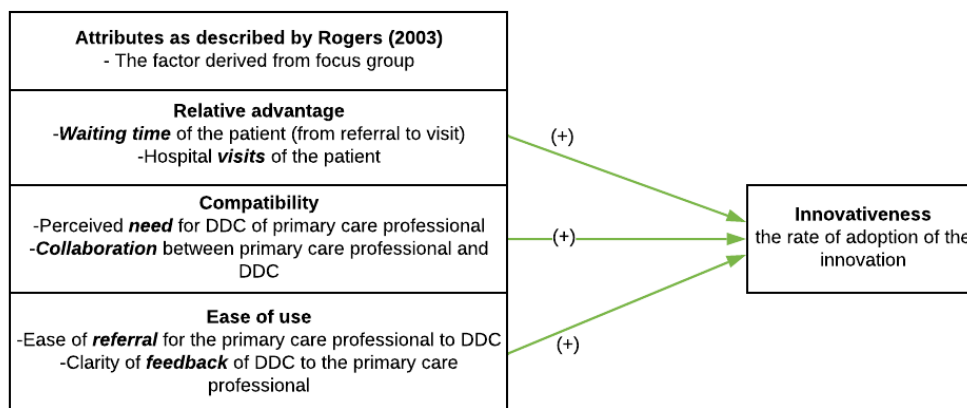


Figure 8: Overview of the attributes of Rogers (2003) and the factors of the DDC emerged from the focus group

Relative advantage is the degree of how the adopting unit perceives the innovation as advantageous. In this research, this translates to how primary care professionals perceive a possible DDC as advantageous. Potential advantages of the DDC mentioned during the focus group are the factors *waiting time* and *hospital visits*. First, the focus group named waiting time as a potential benefit of a DDC over the current organization of geriatric care. Shorter waiting times for patients (between referral and hospital visit) result in a quicker assessment of the care need. This is beneficial for the well-being of the patient, and thus a relative advantage according to primary care professionals. Second, double examinations and extra hospital visits are named in the focus group as a burden for vulnerable elderly patients. Visiting the hospital costs the vulnerable elderly patient time and energy, which is not beneficial for their health. It also is a burden for their social environment since vulnerable elderly are often highly dependent. Therefore, a decrease of visits is named as a relative advantage of a potential DDC in the focus group.

Compatibility is the degree of how the adopting unit perceives the innovation compatible with the prevalent needs and routines. In this research, this translates to how primary care professionals perceive a possible DDC as compatible with their needs and routines. The need for an additional facility within the geriatric care in MST is mentioned during the focus group. Therefore, the factor *perceived need* is identified. In addition, the factor *collaboration* is identified during the focus group. Collaboration is the act of working together to achieve common goals; '*working jointly with others or together*' (Merriam-Webster's online dictionary, 2019). When the collaboration routines with a potential DDC are compatible with the existing routines, the rate of adoption of the innovation is expected to be higher. The importance of clear cooperation and communication between primary care and a possible DDC is discussed multiple times during the focus group.

Ease of use, an antonym of *complexity*, is the degree of how the adopting unit perceives the innovation as easy to use. In this research, this translates to how primary care professionals perceive a possible DDC as easy. Two processes mentioned during the focus group that could be less complex in the current organization of geriatric care are the *referral* and *feedback*. The referral letter is currently sent via an electronic system ('Zorgdomein') by the primary care professional to secondary care. After the patient has visited the hospital the results, advice and possible conclusion (called feedback) are sent via Zorgdomein to the referring professional. This process is readily understood by the users and should not be changed. However, during the focus group it was mentioned that work would be easier by making clear, unambiguous referral and feedback agreements in the DDC.

4.2. The survey

4.2.1. Data collection

The above led to a survey with seventeen questions, resulting in both quantitative and qualitative data (Punch, 2016). The survey consisted of ten multiple-choice questions, three five-point Likert scale questions, two open-ended questions and two ranking questions. Three questions provided general information about the professional and four questions about the (vulnerable) elderly patient (70+) population (in the GP practice). Next, two questions cover the frequency of the four care need categories: deterioration, mobility, delirium and dementia. Seven questions gave more insight into the current and future referral and consultation behaviour. Finally, six questions were asked about the factors of the DDC as identified in the focus group (see section 4.1.2., figure 8). The survey was sent to every primary care professional (GP and GS) in the service area of MST (municipalities Dinkelland, Enschede, Haaksbergen, Losser, and Oldenzaal). In total there are around 150 GPs and GSs in the

service area of MST. Since the GPs in training⁶ and nurse practitioners play a major role in the care for vulnerable elderly in some GP practices, the responses of this group are also included.

4.2.2. Course of research

The survey was accessible online. The link of the survey was sent to all 150 primary care professionals in the service area of MST. Of the 150 professionals, most are GP and only eight are GS (5% of all primary care professionals). The survey was spread via the monthly newsletter of THOON (in October, November and December) and via the monthly newsletter of Tussen de Lijnen (in November and December). The duration of the survey collection was from September until December 2018. The goal set by the advisor Q&S was to achieve at least a response rate of 30%. The number of responses collected by means of the newsletter was low (N= 10). Hence, the approach changed in early December. Every day during the start of the shift at the GP emergency post⁷ the researcher asked the primary care professional on duty face-to-face to fill in the survey. The survey could then be filled in on a hardcopy version or on the tablet brought by the researcher. After two weeks of this new approach, the survey was ultimately answered by 52 respondents (35% response rate). Due to the online format of the survey program, it could only be completed when all questions were answered. Therefore, all 52 responses are included in the analysis of this research.

4.2.3. Data analysis

The quantitative data of the survey results were processed in Excel. The answers on multiple-choice and Likert-scale questions are analysed by the frequency, average and percentage of the answers. The data is displayed using tables and figures. The qualitative data of the open-ended questions related to the preconditions for the implementation of a DDC were structured and described using the factors described in figure 8. Certain answers could not be categorized into one of the identified factors. These answers were closely examined and where possible combined into a new category.

4.3. Insights hospitals in the Netherlands

Three informal conversations were organized with healthcare professionals working within the geriatric care of other hospitals in the Netherlands. The information obtained from these conversations was used to answer the fifth sub-question. The goal of these meetings was to get insight into the organizational processes of geriatric care in other regions of the Netherlands. All seven hospitals of Santeon, a Dutch hospital group, were asked by the staff manager of Q&S MST to share their experiences regarding the organization of the geriatric processes. Two hospitals responded to this request. In addition, a hospital in Utrecht was approached using the social network of the internist geriatrician of MST. The professional of UMC Utrecht invited the researcher to observe the processes during a full workday. The conversations with the other two contact persons were conducted by phone according to their wishes (see table 3). The notes of the conversations were written out after the informal conversation. The relevant text fragments were then identified and summarized.

Table 3: List of contacts of the hospitals and communication channel (face-to-face or by phone)

Profession	Hospital	Communication
Nurse specialist	UMC Utrecht	Face-to-face
Geriatric physician	Canisius Nijmegen	Phone
Department manager	Maasstad Rotterdam	Phone

⁶ In Dutch known as ‘Huisarts in Opleiding’ or ‘HAIOS’.

⁷ The GP emergency centre is located in the building of MST. All GP’s in the service area of MST need to occasionally work shifts in this centre after working hours.

4.4. Validity and reliability

For the purpose of validity, the survey was designed based on the DOI theory, a focus group, regional report and the expertise of involved professionals. Six people with different backgrounds in relation to this research carefully tested the survey: two GPs (one participant of the focus group and one randomly selected), the internist oncologist, one GS and two colleagues of Q&S MST. These six test participants checked if the questions and answer options were clear. They also checked whether the questions were asked in a logical order. The completion time was measured, to ensure that the respondents were given a realistic time indication for completing the survey. The researcher strived to reach as many primary care professionals as possible. This increases the validity of the research. First, by distributing the survey through two different online channels (THOON and Tussen de Lijnen). All primary care professionals in the service area of MST received the newsletter via one or both channels. Next to the online approach, as many as possible primary care professionals were reached via a face-to-face approach at the GP emergency post located in MST.

4.5. Ethical issues

This research is approved by the Ethical Committee of the faculty Behavioural Management and Social Sciences of the University of Twente (approval number: 18801).

Results

4. Current referral behaviour

The coming chapter provides results regarding the first sub-question of the research: *In what way do primary care professionals currently refer and/or consult the care needs of vulnerable elderly (70+) in the service area of MST?* At first, the vulnerability and the frequency of the care needs of the vulnerable elderly patients of primary care professionals are described. Furthermore, the current referral and consultation behaviour of primary care professionals is discussed.

5.1. Vulnerability

In total, 52 primary care professionals responded to the survey. The distribution of the different professions of the respondents is presented in table 4. The majority of the respondents are GP (88%). This can be explained by the small percentage of primary care professionals working as GS (5%; see section 4.2.2.). Primary care professionals were asked to estimate which percentage of their 70+ patients can be considered vulnerable according to the definition of Campen (2011). In total, 23 respondents indicated that less than 20% of their 70+ patients is vulnerable. Also, 23 respondents indicated that between 20% and 39% of their 70+ patient are vulnerable (see figure 9). Striking is that all three respondents working as GS indicated that more than 80% of their 70+ patients are vulnerable. This can be explained by the fact that GSs mainly see vulnerable elderly patients since this is their speciality.

Table 4: Distribution of professions among respondents

Profession	N (%)
General practitioner	46 (88%)
- ... with own practice	38 (73%)
- ... without own practice	6 (12%)
- ... in training	2 (4%)
Geriatric specialist	3 (6%)
Nurse practitioner	3 (6%)
Total	52 (100%)

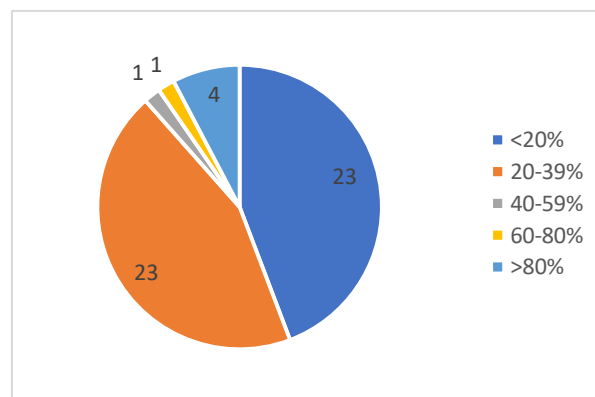


Figure 9: Percentage of vulnerable elderly (70+) according to primary care professionals

5.2. Frequency of care needs

As described in section 4.1.1., a distinction is made between four care need categories: deterioration, mobility, delirium and dementia. Table 5 provides the results of how often vulnerable elderly (70+) visit the primary care professionals per different category. Primary care professionals were asked to score the frequency of the categories on the scale from 1 to 5 (1= never and 5= often). Care needs in the category deterioration are most seen by the respondents, followed by mobility and dementia. Care needs in the category delirium are least commonly seen by the respondents.

Table 5: The frequency of care need categories of vulnerable elderly (70+) seen by primary care professionals

Category	Average	SD
Deterioration	4,1	0,5
Mobility	3,7	0,7
Dementia	3,6	0,7
Delirium	3,0	0,8

The results of the survey show that the majority of primary care professionals (98%) refer less than 20% of their vulnerable elderly (70+) to the GOC of MST. To estimate how often the four care need categories are relatively referred to the GOC, the respondents were asked to rank the categories (1= least referred and 4= most referred). The relative score is calculated by means of the ‘score rank’⁸ (see table 6). The results show that deterioration care needs are most often referred to GOC, followed by delirium and dementia. Mobility care needs are least referred to the GOC. Deterioration is both indicated as most seen (table 5) and as most referred to GOC (table 6). Mobility care needs are second-most seen by the respondents (table 6). However, this category is least referred to the GOC (table 6). Striking is the variance of answers in category dementia (table 6). The category dementia is ranked ‘most referred’ by 19 respondents and ‘least referred’ by 18 respondents.

Table 6: Ranking of the care need categories of vulnerable elderly (70+) referred to the GOC

Category	# Rank 1 (least)	# Rank 2	# Rank 3	# Rank 4 (most)	Score rank
Deterioration	9	8	9	25	152
Delirium	8	19	18	7	128
Dementia	19	10	5	18	126
Mobility	16	15	20	1	110

5.3. Current referral behaviour

The primary care professionals were asked which referral and/or consultation action they are currently choosing for every care need. In the survey, there were four possible different answers (‘actions’): (1) no referral or consultation, (2) consultation within the primary care (GP or GS), (3) referral to the GOC and (4) other (ED, other medical specialism or professional). The charts (1.1.-1.4.) present how often a certain action is chosen per care need, indicated in the number of respondents. Primary care professionals were able to give multiple answers. Therefore, the number of chosen actions can vary per care need and is usually greater than the number of respondents (N= 52). The total number of actions chosen by the respondents, per care need is indicated in the chart with N= x.

The legend under the chart provides the column number and the corresponding description of the care need. For example, column 1 in chart 1.1. presents the care need ‘the unclear cause of the deterioration’. The legend indicates the preferred action of the respondents in the current situation. Finally, the legend shows how often the preferred action was chosen by the respondents, with the corresponding *percentage of cases*. The percentage of cases gives information about which percentage of the respondents chose each action. Every care need has a most chosen action, which is the action with the highest N. However, substantial large differences are of interest in this research. When the difference between the most chosen action and the other actions is greater than N= 6 (which is equal to a difference of 10%), this action is indicated as *the preferred action*. When the difference is smaller than N= 6, there is no substantial preferred action, and this is indicated in the legend with ‘none’. This is done to identify the care needs for which primary care professionals have a clear direction of referral or consultation.

In total there are nineteen care needs. It is striking that eight of the nineteen care needs do not have a preferred action (‘none’) (42%). At none of the care needs the action ‘no referral or consultation’ and ‘consultation within primary care’ is the preferred action of the respondents. ‘Referral to the GOC’ is

⁸ Calculated by (rank 1 x 1) + (rank 2 x 2) + (rank 3 x 3) + (rank 4 x 4).

preferred in the case of three care needs (16%). The option ‘other’ is the preferred action in the case of eight care needs (42%).

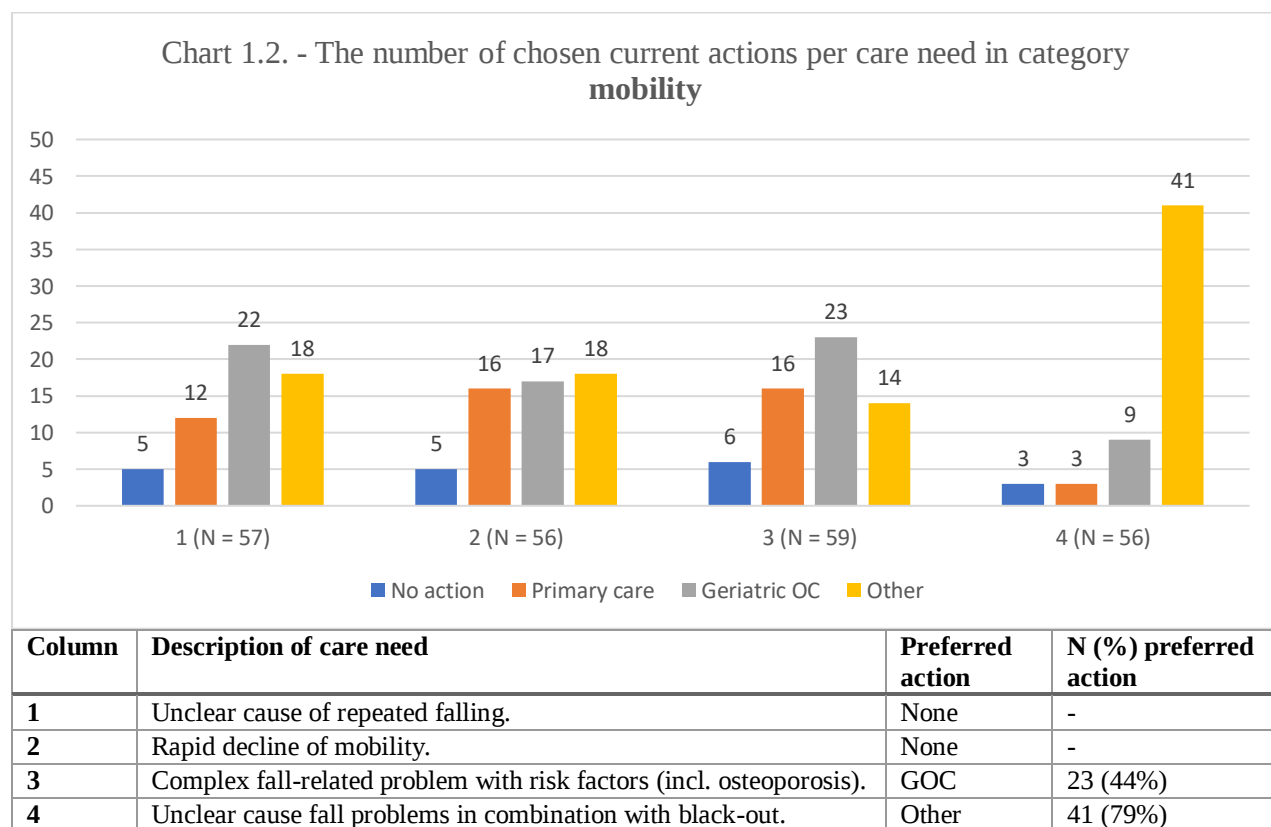
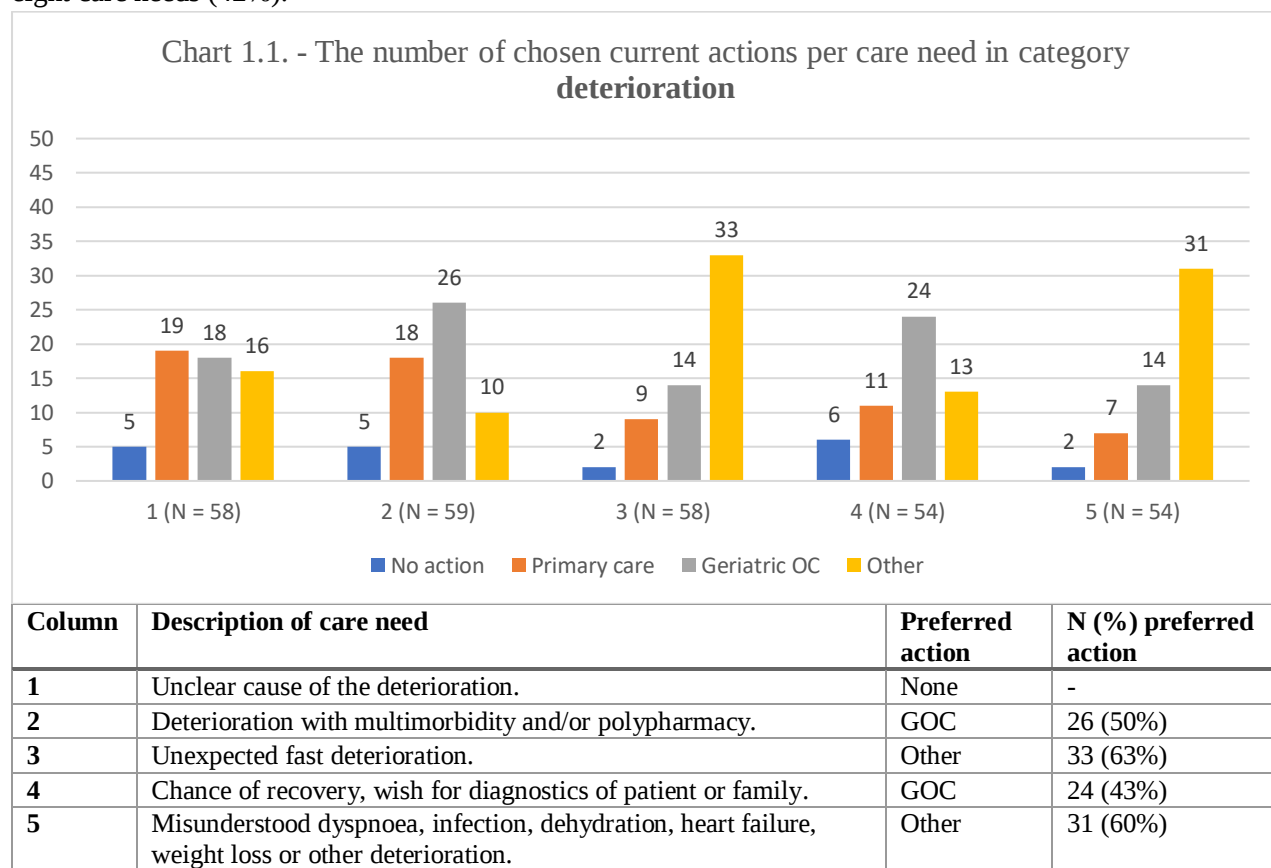
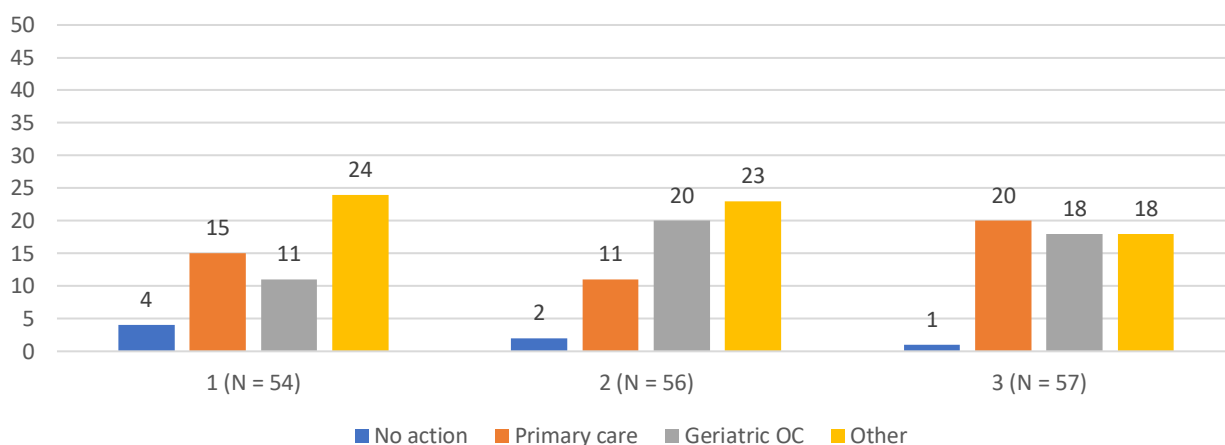
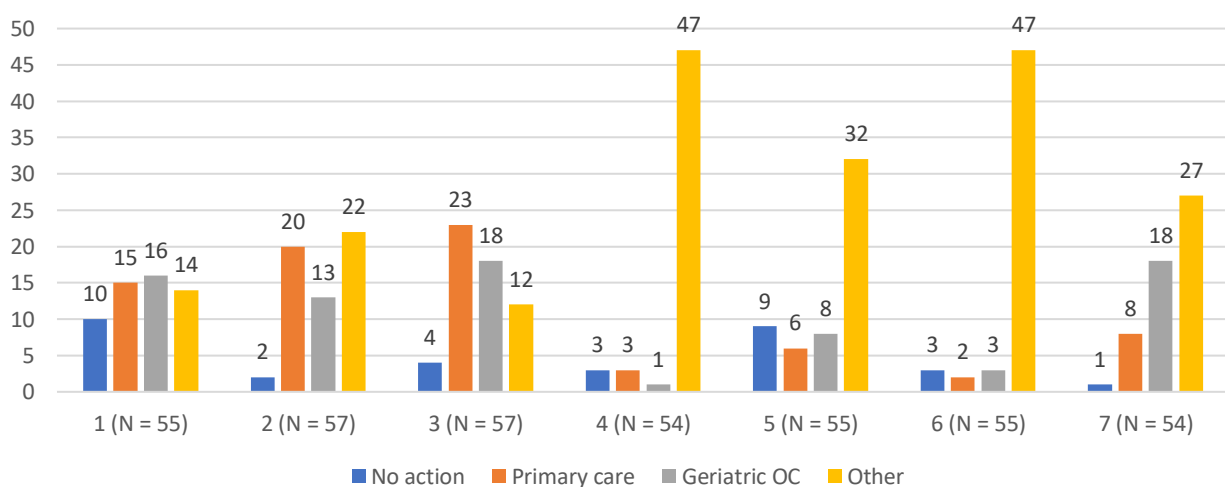


Chart 1.3. - The number of chosen current actions per care need in category **delirium**



Column	Description of care need	Preferred action	N (%) preferred action
1	Insufficient research, treatment and/or care options or safety in the home situation.	Other	24 (46%)
2	Uncertainty about the cause of the confusion.	None	-
3	Insufficient effect of current treatment.	None	-

Chart 1.4. - The number of chosen current actions per care need in category **dementia**



Column	Description of care need	Preferred action	N (%) preferred action
1	Diagnosis of the existence of dementia.	None	-
2	Serious behavioural problems and/or psychiatric illness.	None	-
3	Significant increase in cognitive disorders.	None	-
4	Recent head injury.	Other	47 (90%)
5	Unexplained micturition or urinary incontinence.	Other	32 (62%)
6	Neurological failure.	Other	47 (90%)
7	Wish of patient to treatment with (experimental) medication.	Other	27 (52%)

5.4. Sub-conclusion

The *current* referral and consultation behaviour of primary care professionals in the service area of MST has been mapped and the preferred actions of primary care professionals are identified. Besides, general information is gathered about the frequency of the care need categories and frequency of referral to GOC. The majority of primary care professionals refer less than 20% of their vulnerable elderly (70+) to the GOC. The category deterioration is most often seen and referred to the GOC by primary care professionals. For three care needs the preferred action of primary care professionals is *referral to GOC*. Two of these care needs fall under the category deterioration. This may imply that the category deterioration covers a notable part within the GOC in the service area of MST. Striking is that for 42% of the care needs the preferred action is '*other*'. For some of these eight care needs, this choice for 'other' can be explained. For example, it can be expected that 'urinary incontinence' is referred to urology, 'heart failure' to cardiology or ED and 'neurological failure' and 'recent head injury' to neurology or ED. For other of these eight care needs, this choice is less expected. For instance, 'treatment with experimental medication' and 'insufficient research, treatment and care options'. In addition, it is also remarkable that 42% of the care needs have no preferred action. The results show a large variance in the answers given by the respondents. This, and a large number of care needs with 'other' as preferred action, may imply a lack of direction in the referring and/or consulting actions of primary care professionals of vulnerable elderly (70+).

5. Future referral behaviour

The coming chapter provides results regarding the second sub-question of the research: *In what way would primary care professionals like to refer and/or consult the care needs of vulnerable elderly (70+) in the service area of MST in a future situation with a DDC?* The future referral and consultation behaviour of the primary care professional is discussed. Furthermore, the frequency of referrals to a DDC as indicated by the respondents is described in this chapter.

6.1. Future referral actions

The primary care professionals were asked which referral and/or consultation action they would like to choose in a future situation for every care need. In the survey, there were three possible different answers ('actions'): (1) same as current action, (2) referral to DDC, (3) ECMS or TCMS. The charts (2.1.-2.4.) indicate in numbers how often each action is chosen per care need by the primary care professional. The same approach is used to present and discuss the results as for the current actions (see section 5.3.)

Again, there are nineteen care needs. 'Referral to the DDC' is the preferred action of primary care professionals for the majority of the care needs (58%). At none of the care needs the action 'TCMS or ECMS' is the preferred action. The results show that six care needs do not have a preferred action in the future situation (32%). In the case of only two care needs the action preferred by the primary care professional is *similar to the current action* (11%).

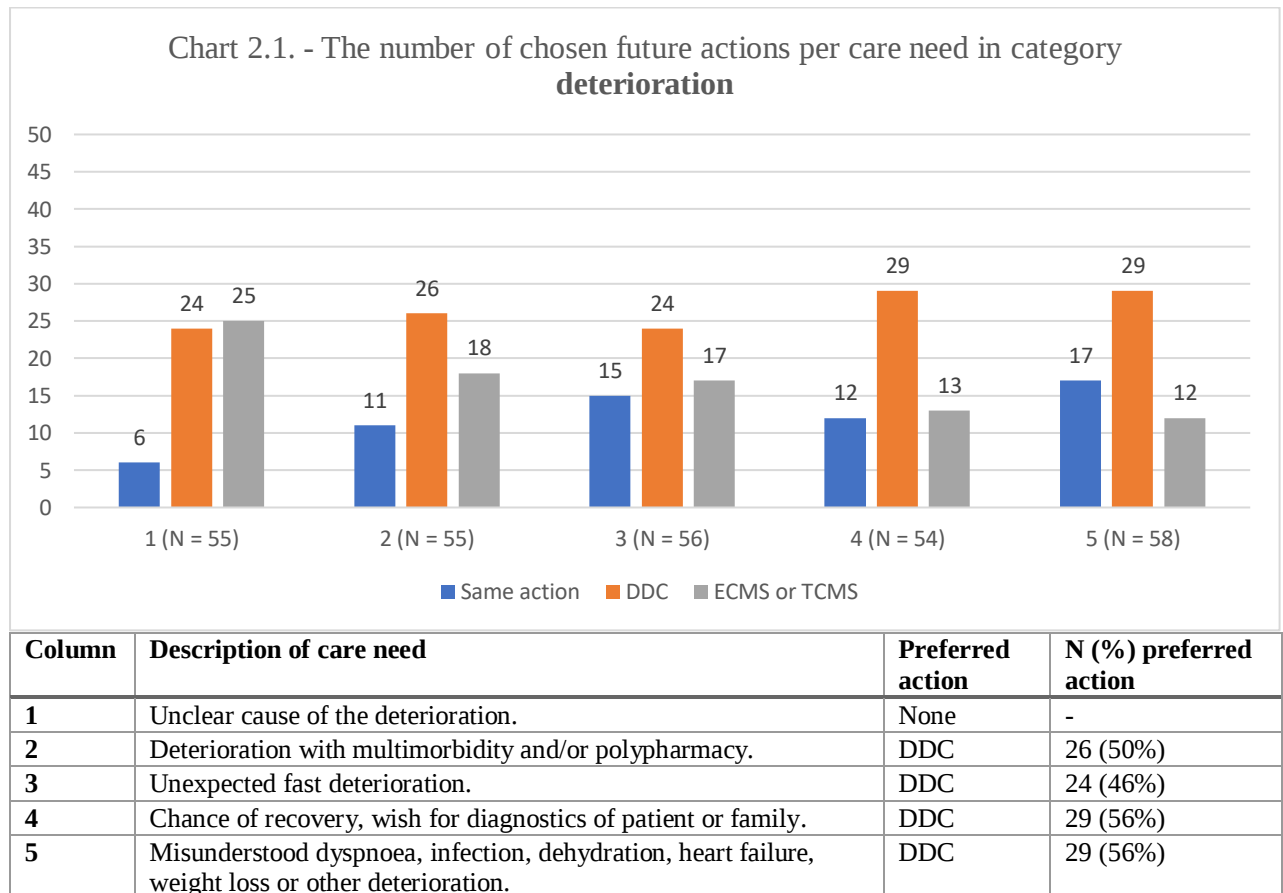
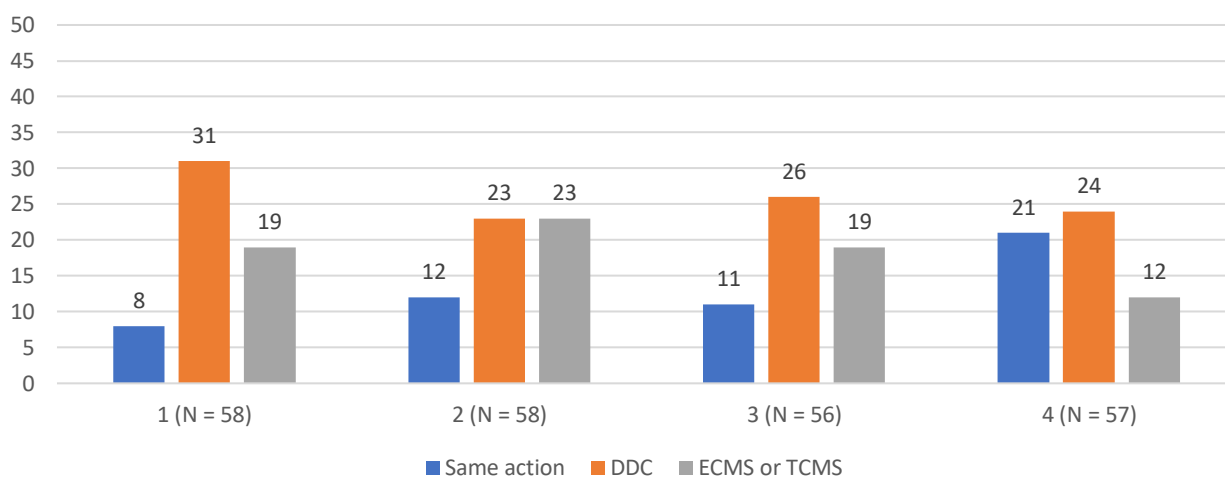
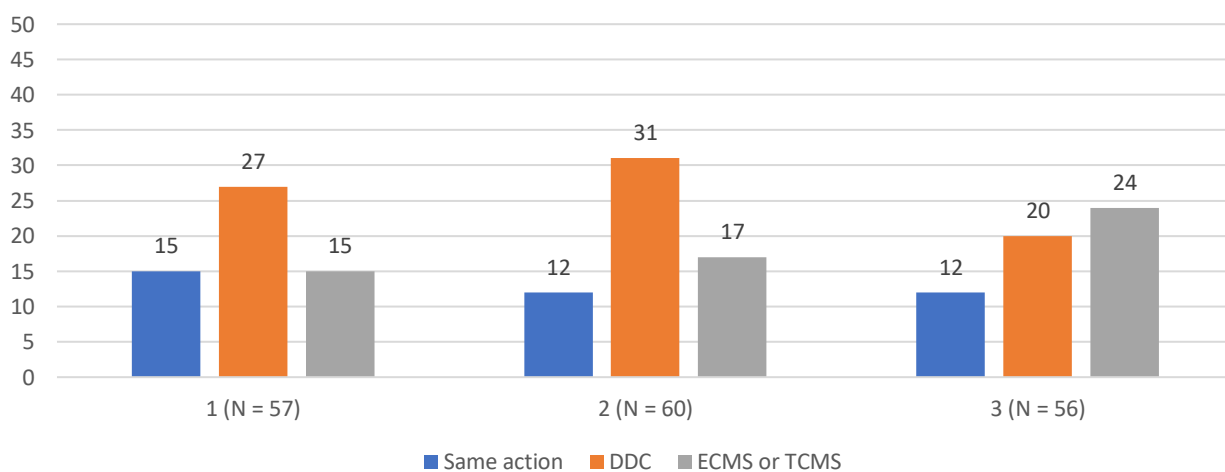


Chart 2.2. - The number of chosen future actions per care need in category **mobility**

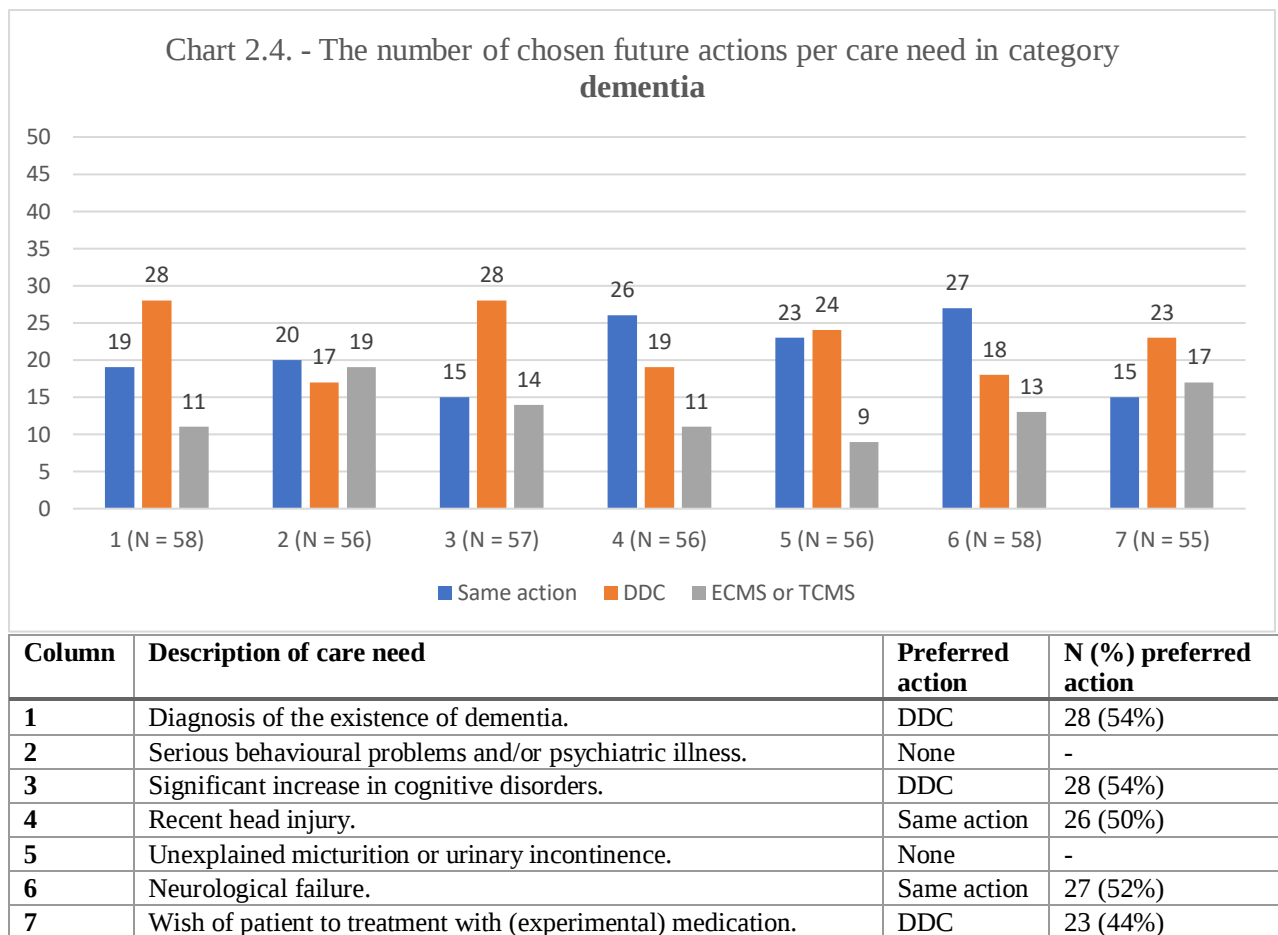


Column	Description of care need	Preferred action	N (%) preferred action
1	Unclear cause of repeated falling.	DDC	31 (60%)
2	Rapid decline of mobility.	None	-
3	Complex fall-related problem with risk factors (incl. osteoporosis).	DDC	26 (50%)
4	Unclear cause fall problems in combination with black-out.	None	-

Chart 2.3. - The number of chosen future actions per care need in category **delirium**



Column	Description of care need	Preferred action	N (%) preferred action
1	Insufficient research, treatment and/or care options or safety in the home situation.	DDC	27 (52%)
2	Uncertainty about the cause of the confusion.	DDC	31 (60%)
3	Insufficient effect of current treatment.	None	-



6.2. Prediction of referrals to DDC

To get an indication of the number of vulnerable elderly (70+) that the primary care professional would like to refer to the DDC, they were asked how many patients they would like to refer per month. This is asked by means of an open-answer question. Most respondents answered with one number, but some respondents filled in a range (for example, three to five patients). In these cases, the average of the range is included for analysis (for example, average of four). The dataset is analysed to identify outliers, which are in this case the values lower than the lower bound value (-0.75) and higher than the upper bound value (5.25). One major outlier was identified in the data set. Since the outlier influences the average in a way that could be misleading, this value is not included for further calculation.

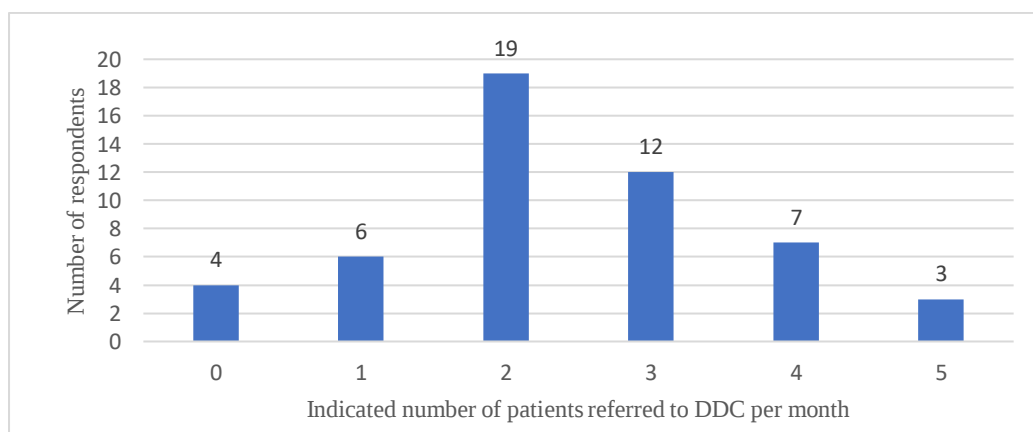


Figure 10: Overview of indicated number of patients referred to the DDC per month according to primary care professionals

Figure 10 provides an overview of the answers given by the respondents. The mode, the value that occurs most in the data set, is two. This means that most of respondents would like to refer two patients to the DDC per month. Also, the average of the dataset is two, which means that the respondents would like to refer two patients on average to the DDC per month (SD 1). Assuming a normal distribution, 95% of the primary care professionals would like to refer between zero and four patients per month.

6.3. Sub-conclusion

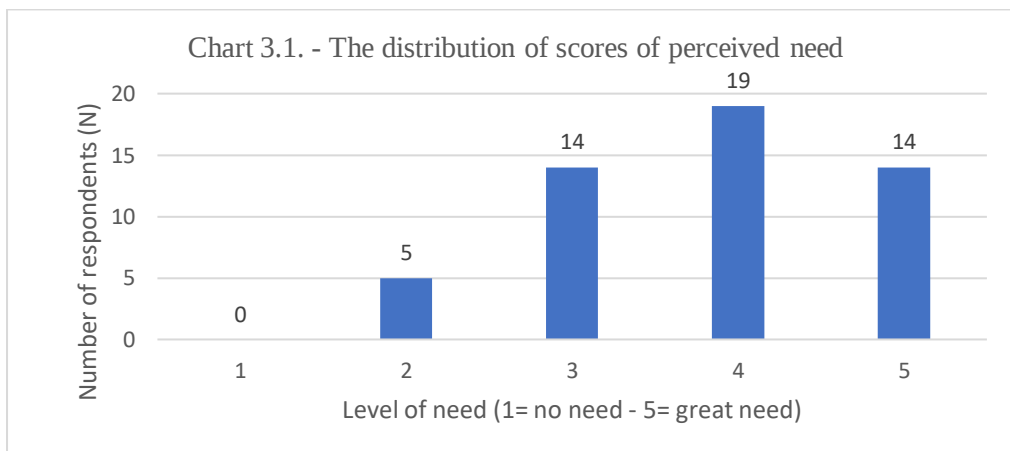
The *future* referral and consultation behaviour of primary care professionals in the service area of MST has been mapped and the preferred actions of primary care professionals are identified. Besides, information is provided regarding an indication of referrals to a DDC according to primary care professionals. For 58% of the care needs *referral to DDC* is the preferred action of primary care professionals. This large number of care needs that primary care professionals would like to refer to the DDC may imply that they have a need for a DDC in MST. Examples of these care needs are among others: ‘unexpected fast deterioration’, ‘significant increase in cognitive disorders’ and ‘uncertainty about cause of confusion’. It can be expected that these care needs will be referred to the DDC when it is taken into use in MST. Although the action ‘*TCMS or ECMS*’ was in none of the cases the preferred action, it was regularly chosen by primary care professionals as action. For example, the care needs ‘insufficient effect of current treatment’ and ‘rapid decline of mobility’. This implies that the option of TCMS and ECMS should also be carefully considered by MST given the future referral and consultation behaviour of primary care professionals. Striking is that only for two care needs *the same action* as in the current situation is preferred by primary care professionals (‘recent head injury’ and ‘neurological failure’). For both care needs the preferred action was ‘other’ in the current situation. The results imply that patient with these care needs will not be often referred to a DDC in MST.

6. Factors of DDC

The coming chapter provides results regarding the third sub-question: *Which factors of a DDC are considered important by primary care professionals in the service area of MST?* Section 4.1.2. provided the description of how the DOI theory of Rogers (2013) and the information derived from the focus group, led to the formulation of six factors that could promote the rate of adoption of a DDC. First, the factor of perceived need is discussed. Subsequently, the (relative) importance of the factors is questioned using Likert scale and ranking questions. Chart 3.2. presents the average score of importance per factor. In this chart, the error bar represents the standard deviation. Chart 3.3. presents the rank score⁹ per factor to indicate the *relative* importance. The data from this ranking question makes it possible to make a distinction between the importance of the factors.

7.3. The perceived need for a DDC

The factor *perceived need* entails the compatibility of a DDC with the perceived need of primary care professionals. The approach to determine the importance of this factor varies from the other five factors. Primary care professionals were asked to rank their perceived need for a DDC on the scale from 1 to 5 (1 = no need and 5 = great need). The average score of the perceived need of the respondents is 3.8 (SD 0.95). The mode of the dataset is 4, which means that most respondents perceive a need of 4 out of 5. None of the respondents indicated that they perceive no need for a DDC in MST (see chart 3.1.). Also, the variation in perceived need between the three groups of professions is calculated. There was a difference of 0.2 between the highest average score of 3.9 (GPs) and the lowest average score of 3.5 (nurse practitioners). It is important to mention that both the groups of nurse practitioners and GPs were small compared to the GP group (see table 4, section 5.1.)

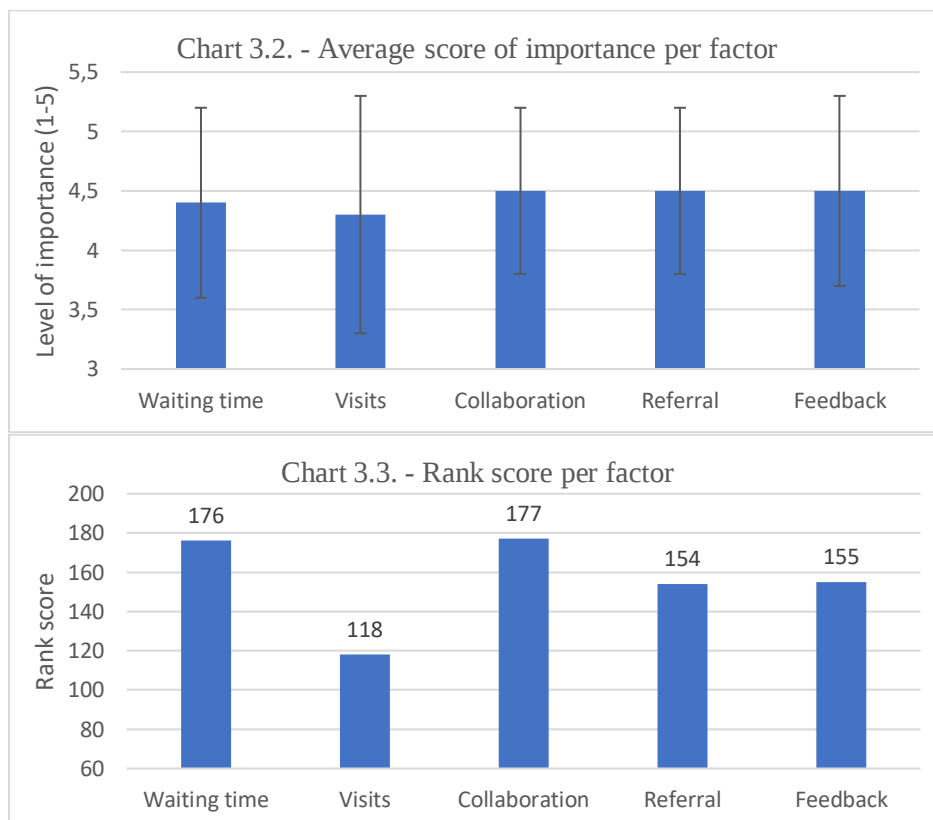


7.2. Importance of factors according to primary care professionals

The factor *waiting time* is defined as the time between the referral of the primary care professionals and the actual visit to the secondary care. The respondents rated the waiting time with an average score of importance of 4.4 out of 5 (SD 0.8). The rank score of this factor (176) is one of the highest scores of the five factors. The factor *visits* is defined as the number of visits to the hospital of the vulnerable elderly. Visits scored the lowest average score of importance (4.2 out of 5). The respondents are most divided on this factor, given the highest standard deviation (SD 1). Also, the rank score of visits is the lowest of the five factors (118). The factor *collaboration* describes the cooperation and communication between the primary care professional and the DDC. The respondents rated collaboration with an average score of 4.5 out of 5 (SD 0.7). The rank score of collaboration is

⁹ Calculated by (rank 1 x 1) + (rank 2 x 2) + (rank 3 x 3) + (rank 4 x 4) + (rank 5 x 5) = rank score

the highest of the five factors (177). The factor *referral* is defined as the ease of referral of the care need of vulnerable elderly (70+) to the DDC for the primary care professional. Respondents rated the factor *referral* with an average of 4.5 out of 5 (SD 0.7). The rank score of this factor is 154, close to the average rank score of the five factors (156). The factor *feedback* entails the clarity of feedback to the primary care professional after the patient visited the DDC. The average score of importance given by the respondent is 4.5 out of 5 (SD 0.8). Again, the rank score of this factor (155) is close to the average rank score.



7.4. Sub-conclusion

The importance of the identified factors as perceived by the primary care professional has been identified. Given the result, it can be stated that the primary care professionals perceive a need for a DDC in MST. Whereas none of the respondents indicated 'no need'. The high average scores of importance of the other five factors imply that the primary care professionals find all identified factors important. It can be expected that all factors are expected to influence the decision to adopt a DDC in MST, and all should therefore be taken into account when the DDC is put into use. Since this was expected, the relative importance was also questioned. The ranking question resulted in a *rank score* per factor, which made it possible to distinguish between the importance of the factors. The rank scores show that the factor *visits* is considered as least important by primary care professionals. The factors *waiting time* and *collaboration* are perceived as most important. The factors *referral* and *feedback* also have high scores. The rank scores imply that the four identified factors with the highest score will influence the decision of primary care professionals to adopt or reject the DDC, and should thus be taken into consideration when the DDC is taken into use in MST

7. The preconditions according to the primary care professionals

This chapter provides results regarding the fourth sub-question: What are preconditions for the implementation of a DDC in MST according to primary care professionals? Primary care professionals were asked to explain what they think is essential for the successful implementation of a DDC in MST. The answers are structured using the six factors derived from the theory and focus group (see section 4.1.2.). These identified factors are used as a guideline to present and discuss the preconditions (see Appendix C, table 10).

In response to the question of what is essential, six primary care professionals gave an answer that showed a critical attitude towards the implementation of a DDC in MST. Furthermore, there are 22 answers regarding the capacity and availability of expertise in MST. These answers are not classified under one of the predefined factors. Given the large number of comments about expertise, these are grouped under the category expertise. Table 10 in Appendix C presents the answers given by the respondents, per category and with the frequency of the comments. This chapter describes the preconditions of the primary care professionals supported by quotes¹⁰.

8.1. Preconditions of primary care professionals

The *waiting time* for the patient is indicated as a precondition by seventeen respondents. Fast diagnosis for vulnerable elderly is indicated as important, because *‘with a waiting time of weeks, you will soon have no use for a facility for care needs that require a quick answer’* (respondent 13; r13). It is mentioned that *‘before starting a new project, the waiting time at the GOC should be first a point of attention. I wonder if there would still be a need for a new idea if the waiting time would be less’* (r19). The length of the waiting time depends on the *expertise* in the DDC, which is mentioned by 22 respondents as a precondition. Five respondents mentioned the lack of quality of the current expertise in MST and five respondents mentioned the lack of accessible expertise in the current situation in MST. For example, *‘Just make sure there is good and accessible expertise, that’s all. It is now below par, due to a lack of geriatricians’* (r24). The *prevention of extra hospital visits* is indicated as a precondition by nine respondents. One respondent stated that the DDC is valuable *‘if fast diagnosis can be arranged within a short time and within only one hospital visit of the patient’* (r22). Six respondents mentioned it is essential to carry out all test in one hospital visit, on one (part of a) day. Three respondents mentioned the importance of *‘avoiding double medical tests’* (r18).

Collaboration is most stated by primary care professionals in the survey (34 respondents). Clear and good coordination between the different actors is mentioned as essential by thirteen respondents. Four respondents mentioned the need for clear communication, and three respondents indicated close involvement of the primary care professionals as a precondition. The importance of *‘korte lijnen’* is mentioned by eight respondents. *‘Korte lijnen’* is a commonly used term in the care sector, which can be translated into *‘direct communication’*. For example, *‘the DDC must be easily accessible for communication with primary care professionals, short communication and direct and fast feedback is essential’* (r51). Finally, the close collaboration or integration of a GS is named as a precondition by three respondents, of which one mentioned that *‘it may also be an idea to involve the GS closely. The DDC can examine in consultation with the GP, who can best help the vulnerable elderly’* (r3).

The *ease of referral* is also often highlighted by the primary care professional (28 respondents). *‘Easy accessible referral and consultation to DDC’* (r5) is mentioned by twelve respondents. Currently, it is difficult for primary care professionals to refer or consult the care needs of vulnerable elderly to the

¹⁰ The text fragments from the survey can be found in Attachment *‘Preconditions survey’*

right care. For example, *'sometimes it is difficult to determine what you can best do with the vulnerable elderly, which takes a lot of time'* (r29). To improve the referral, it is essential to make processes easy to use, *'keep it simple'* (r41). One respondent mentioned that the DDC should function as *'an easily accessible centre (for both referral and consultation), so the care need of the patient can be quickly addressed'* (r31). The *clarity of feedback* by the DDC to the referring professional is mentioned by 24 respondents. A distinction can be made between comments about the speed of the feedback provision and the content of the feedback. Seven respondents mentioned the importance of the *speed* of the feedback, of which one respondent mentioned that *'feedback should be provided to the referring professional the same day'* (r15). Respondents indicated the need for clear feedback, realizable and practical advice, but also long-term advice and follow-up actions. *'Clear agreements with regard to reporting'* is mentioned as a precondition (r22). Also, respondents stated the relation between the content of the feedback letter and the referral letter, *'a targeted referral letter gives the opportunity to get good feedback'* (r18).

8.2. Sub-conclusion

The preconditions according to primary care professionals have been described. Most of the respondents' answers show a neutral or positive attitude towards the implementation DDC. However, some answers of the respondents showed a sceptical attitude. For example, there were answers given that the implementation of a DDC has no clear added value. Preventing double visits and double medical tests are least mentioned, which implies that this is less important for a successful implementation according to the primary care professionals. Waiting time is often raised by primary care professionals as a precondition. It is mentioned by primary care professionals that the waiting times should be reduced first before new projects are started. The accessibility and quality of geriatric expertise are mentioned as a precondition of the implementation. Comments about the feedback provision of DDC towards primary care can be divided into two categories: the content and the speed. Most answers given by the primary care professionals are related to the collaboration between primary care and the DDC, followed by answers regarding the ease of referral to the DDC. These points should be taken into consideration for the successful implementation of a DDC in MST.

8. Insights of Dutch hospitals

This chapter provides results regarding the fifth sub-question: *Which recommendations emerge from the experiences of other Dutch hospitals regarding the organization of geriatric care?* A description is given of the experiences of three Dutch hospitals shared during the informal conversations supported by quotes of the conversations¹¹.

9.1. Insight of three Dutch hospitals

In Rotterdam, patients are generally seen by the geriatrician within two to four weeks (line 21; l.21). The waiting time in Utrecht is around two to three weeks (l.53). The waiting time in Nijmegen is usually around three to five weeks (l.101). It is indicated that the waiting time for the geriatric department can vary greatly. Rotterdam mentioned that the waiting time is usually longer in the winter compared to the summer (l.19). Utrecht has the capacity of eighteen outpatient visits per week (l.55). They work at the geriatric department with eight geriatricians and around fifteen physician assistants (l.58). Rotterdam has ten geriatricians at its disposal and Nijmegen has five geriatricians (l.35; l.127). The possibility of a ‘spoedplek’ has not been questioned in the survey, but the concept of spoedplek has been discussed by the three hospitals. The term ‘spoedplek’ can be translated as a geriatric emergency outpatient consult. The idea of the spoedplek is that vulnerable elderly with the medical need can get an appointment within a few days at the outpatient clinic (usually two days). Nijmegen hospital does not make use of a spoedplek (l.113). Nijmegen mentioned that *‘in the rule, there are no emergency cases, so there is no acute dementia or acute polypharmacy. After a fall, the cardiologist or surgeon is needed. Only in the case of chronic fall tendency without a clear single cause, the geriatric department is needed’* (l.120). The other two hospitals make use of a spoedplek but mentioned that their facility is rarely used. The spoedplek timeslots are filled in with a regular consult five days in advance (l.21; l.50). Utrecht mentioned that *‘patients and their informal caregivers find it difficult to organize a hospital visit in a few days (such as patient transport, leave request informal caregiver)’* (l.53). Utrecht and Rotterdam stated that the need for a ‘spoedplek’ is related to the waiting time: if the waiting time is short, the need for a spoedplek is low.

The importance of collaboration between geriatrics and primary care is emphasized multiple times by all three professionals of the hospitals. The intensive contact between referring professional and geriatrics is essential for the coherent geriatric care in Rotterdam (l.7). The direct communication is an interplay: *‘everyone knows each other and therefore the collaboration is good’* (l.9). Utrecht mentioned that clarity and working agreements regarding collaboration are essential (l.94). It is important that *‘primary care professionals know how to find us’* (l.81). All three hospitals stress that their current cooperation between geriatrics and primary care is a result of many years of collaboration. Rotterdam mentioned that *‘it takes a lot of effort and time to build this collaboration, where primary care professionals and geriatricians are able to find each other and know how they can enhance each other’* (l.41). Utrecht also stated that primary care professionals know how to find them as a result of years of close collaboration (l.81). In line with the above, Nijmegen stated that such smooth cooperation is a result of many years of collaboration and cannot be enforced with protocols (l.128).

In all three hospitals, the referral letter of the primary care professional is sent via Zorgdomein (l.12; l.81; l.99). In Nijmegen, there is also often contact via telephone, *‘in case of an insufficient clear referral letter, the referrer will be contacted for clarity’* (l.101). Rotterdam stated the importance of a

¹¹ The transcripts containing the notes of the informal conversations can be found in Attachment ‘*Transcripts informal conversation hospitals*’

targeted referral letter, *'so the physician can decide whether the patient benefits from a visit'* (l.14). They also indicated that *'as a rule, patients first see a specialist and only then the geriatrician'* (l.30). In Utrecht, the criteria that the referral letter should meet are written down in the RTA (see also section 4.1.1.). The hospital in Utrecht mentioned the importance of a clear referral letter, and its relationship with the feedback letter: *'by receiving a target referral letter, we can send targeted feedback'* (l.93). The RTA also described the elements that the feedback letter should contain, such as a summary of what has happened and the (follow-up) advice. Both Utrecht and Rotterdam mentioned that they provide the feedback as quick and short as possible, *'since the referring professionals often have little time to read long text'* (l.27). The use of a triage tree is mentioned by all three professionals of the hospital. With the use of this decision-making tool, *'it can be clearly seen where the patient has to go'* (l.12). Using the triage tree, it can be decided that the care need is not suitable for geriatrics. In that case, they can refer the patient to another specialist in the hospital or give advice on other suitable actions (l.15; l.81 l.102). If used accurately, *'the patient could immediately be sent to the right place, which prevents extra visits and examinations'* (l.17).

9.2. Sub-conclusion

The experiences of three Dutch hospitals regarding the organization of geriatric care have been described. The following recommendations can be described based on this information. Hereby it is important to mention that the organization of the geriatric care in the three Dutch hospitals is not comparable with MST on all points. For instance, the other hospitals have more care professionals available, and therefore more capacity. The waiting time of the three hospitals varies between two and five weeks, wherein MST the waiting time was around eight to ten during the survey of this research. Currently, the waiting time in MST is around five weeks (April 2019). A spoedplek is discussed with the three professionals of the hospital, who all indicated that the need for spoedplekken is related to the length of waiting time. According to the experience of the hospitals, having a spoedplek is of less value for the vulnerable elderly patient when the waiting time is shorter. The informal conversations showed that the hospitals have been working in a certain way for several years. This ensures continuity, which contributes to clear collaboration between primary and secondary care. Since all professionals know where to find each other, which safeguard direct communication. All three hospitals mentioned that this is a result of years of effort and cannot be enforced with protocols. Experiences of the hospitals showed that there is clarity about the referral process and feedback provision because clear agreements are written down. Finally, the informal conversations show that the triage tree is of value. The use of the decision-making tool contributes to integrated care for vulnerable elderly (70+): the right care, on the right place, at the right time.

9. Conclusion

This research is aimed at determining the preferences of the primary care professionals for the implementation of DDC in MST. This chapter describes the answers to the research question: *'What are the preferences of primary care professionals for the implementation of a diagnostic day centre (DDC) for vulnerable elderly patients (70+) in Medisch Spectrum Twente (MST)?'*

At first, the research identified preferred referral and consultation actions of primary care professionals in the current situation. For 42% of the care needs of vulnerable elderly (70+), there was no preferred action identified. Results show a large variance in the answers given by primary care professionals, 42% of the care needs have no preferred action. It can be concluded that there is a lack of direction in the referring and/or consulting actions of primary care professionals of vulnerable elderly (70+).

Subsequently, the research identified preferred referral and consultation actions of primary care professionals in a future situation with a DDC. The results give an indication of which care needs will be referred to a DDC when taken into use in MST, and which are less likely to be referred. For only 11% of the care needs the primary care professionals preferred the same action as in the current situation. Given that referral to the DDC is the preferred action for a majority of the care needs (58%), it can be concluded that there is a need for the implementation of a DDC in MST.

Next, the research focused on the six identified factors of a DDC in MST as perceived by primary care professionals. Results show that primary care professionals perceive a *need* for a DDC in MST. From the results can be concluded that all factors are perceived as important and should be taken into account when a DDC is put into use in MST. Looking at the relative importance, *visits* will least influence the decision of the primary care professional to adopt a DDC. The *collaboration* and *waiting time* will influence the decision to adopt the DDC most, followed by *referral* and *feedback*. These four factors should be taken into consideration when the DDC is taken into use in MST.

Finally, the research discussed the preconditions of the primary care professionals for the implementation of the DDC and the experiences of three other Dutch hospitals regarding the organization of geriatric care. Collaboration between primary and secondary care, especially direct communication, is most often highlighted. Also, the length of the waiting time is frequently indicated as a precondition. According to primary care professionals and the three hospitals, the ease of referral and clarity of feedback are interrelated and is a precondition for the implementation of a DDC in MST.

10. Discussion

The aim of this research was to determine the preferences of primary care professionals for a DDC in MST for vulnerable elderly (70+). In this chapter, the findings of the research are explained in light of expectations. In addition, the strengths and limitations of the research are discussed. These points should be considered when the results of the research are interpreted. Finally, the recommendations for further research are presented here.

11.1. Interpretation of findings

The research used the DOI theory, which describes the four elements of the spread of an innovation (Rogers, 2003). The focus in this research was on the element: the perceived attributes of the innovation by the adopting unit. Factors that promote the rate of adoption were identified based on the three attributes of Rogers (2003). These factors potentially influence the decision of the primary care professional to adopt or reject the innovation. Considering DOI it can be assumed, that primary care professionals are more likely to adopt, and subsequently implement the innovation if the DDC would meet the factors identified in this study (section 3.2.1., figure 6). The results show that all identified factors of a DDC are perceived as important by the primary care professional. For instance, if there is clear collaboration, short waiting times, ease of referral and clarity about feedback. The factor visits relatively scored the lowest and has been mentioned least as a precondition by the primary care professionals. Collaboration has relatively the highest score and has been mentioned most frequently as a precondition by the primary care professionals and the three Dutch hospitals.

One of the objectives of this research was to distinguish preferred refer or consult actions in the current- and future situation. However, clear preferred actions could not be identified for various care needs of vulnerable elderly (70+) and the results show large variance in answers given. The fact that there is a lot of variation in the actions of the primary care professional may indicate a lack of unambiguous direction in referral and consultation. An assumption is that this lack of direction can be explained by an absence of clear collaboration agreements. For instance, agreements about where each care need can be sent. But also, agreements about what primary and secondary care professionals can expect from each other. The small number of care needs with a clear preferred action can also be explained by the long waiting time and a lack of accessible expertise in MST during the period of this research (May 2018 to January 2019). When waiting lists are long, primary care professionals may be forced to choose a sub-optimal, but accessible action. It is important to note that after the survey of this research closed, the capacity of geriatric expertise doubled. Now there are two internist geriatricians and two nurse specialists, instead of one each. From the results of this research alone, it cannot be stated what the exact causes for the small number of preferred actions are. However, based on the results of this research, recommendations for improvements can be made (see chapter 12).

11.2. Strengths and limitations

11.2.1. Strengths

To the best of the researcher's knowledge, this is the first research that provides insight into the preferences of the primary care professionals for innovation within the geriatric care setting in MST. These insights can help substantiate if and how an innovation can be implemented, given the preferences of primary care professionals. The factors that are questioned in the survey are based on a well-established theory, the DOI of Rogers (2003). This theory described three attributes of the innovation as perceived by the unit of adoption that influences the rate of adoption of the innovation. These three attributes of the innovation are used in the guideline of coding the focus group, which led to the identification of six factors: waiting time, visit, need, collaboration, referral and feedback.

The focus group consisted of six professionals involved in geriatric care in the service area of MST (of which one moderator). The respondents were deliberately chosen to ensure that the different directions in geriatric care were well represented. The structure of the focus group allowed new input of the participants and allowed follow-up questions if more information related to the topic was needed. Three hospitals responded to the request to share information about their organization of geriatric care. The experiences the hospitals shared were comparable, but the approaches of geriatric care differed from each other. In the frame of the scope of this research and limited time, the information provided by the three hospitals is found sufficient.

This survey is distributed to all 150 primary care professionals in the service area of MST using the monthly newsletter of THOON and Tussen de Lijnen. Besides, primary care professionals were asked to participate in the survey face-to-face in the GP emergency post of MST. The response rate is 35%, the sample is representative of the study population. Therefore, it can be stated that the findings can be generalised.

11.2.2. Limitations

Central in this research are the preferences for the implementation of a DDC in MST. During this research, the idea of the innovation was in a design phase. Therefore, the concept of the DDC is not yet fully developed. In the survey, the respondents are asked to rate the factors of the DDC on the level of importance. It was expected that the factors were all considered important by the respondents. Therefore, the respondents were also asked to rank the factors. If the innovation was already fully developed, the factors could be questioned in a different way. For example, ‘How compatible do you think the innovation is within the current routines?’ and ‘Does the DDC make the referral process easier?’

Given the high workload of the primary care professional, a response rate of 35% is satisfactory. It can be expected that primary care professionals who are not satisfied with the current organization of the geriatric care in MST, are more likely to fill in the survey. Subsequently, it can be stated that the professionals who have participated have different need and thus other preferences for an innovation that changes the geriatric care. But also, primary care professionals with a large patient population of vulnerable elderly (70+) are probably more likely to participate in this research. Professionals who do not feel the need for an innovation such as the DDC, are less likely to spend time completing the survey when this is not relevant to them. The consequence of this may be that the need for the DDC is lower in reality, in comparison with the opinion of the 35% of primary care professionals that participated. This may have influenced the results of the importance of the factors and the preconditions stated by primary care professionals. In the future, this could have been overcome by first sending a single question to all primary care professionals before sending the survey. For example: ‘Are you satisfied with the current elderly care policy of MST?’ or ‘Are you in need of DDC in MST?’. If the professional indicates that they are not satisfied, then the survey link can be sent.

This research showed that 95% of primary care professionals would like to refer between zero and four patients per month (assuming a normal distribution). It can be expected that primary care professionals that did not respond because a lower perceived need for a DDC, will refer less patient to the DDC when taken into use in MST. This is likely to have an effect on the number of patients that will be referred to the DDC per month. In addition, the option of consulting medical specialists via ECMS or TCMS is frequently chosen by primary care professionals. This in combination with the use of a triage tree as a decision-making tool could also influence the number of patients referred to the DDC per month.

11.3. Suggestions for further research

The aim of this research was to determine the preferences of primary care professionals regarding the DDC for vulnerable elderly (70+) in MST. Six factors are identified in this research which could increase the rate of adoption of the DDC: waiting time, visits, perceived need, collaboration, referral and feedback. Further research might explore how the DDC, when taken into use in MST, can be evaluated. Further research could aim at the development of an evaluation that is based on the identified factors.

The DDC could contribute to the integral approach of geriatric care in MST, by addressing the care needs of vulnerable elderly on the right place, at the right time. An objective of the DDC is to assess care needs of vulnerable elderly (70+) during one hospital visit. This could potentially reduce the pressure of vulnerable elderly patients on the ED, and thereby reduce the healthcare expenses. Further research will have to investigate whether this is the case when the DDC is taken into use in MST.

Three Dutch hospitals participated in this research. They shared their experiences regarding the organization of geriatric care in their service area. These insights are used to substantiate the research question. Further research could make an attempt to include and compare more hospitals to explore the best practice of the organization of geriatric care. Best practices are the approach that is proven to work better than the alternatives.

11.Recommendations

The research looked at the preferences of primary care professionals for the DDC in MST. From the results of the research, it appears that there is a need for a DDC among primary care professionals. Results show that reducing the waiting time is considered important by the primary care professional, which is also confirmed by the other Dutch hospitals. Clear collaboration between primary and secondary care also appears to be considered as important by primary care professionals. Finally, results show that primary care professionals prefer ease of referral and clarity of feedback, regarding the care needs of vulnerable elderly (70+). This chapter describes the recommendations for the implementation of the DDC in MST. The recommendations are presented in the form of a plan of action. An overview of this plan of action is given in table 7 and elaborated in the following chapter.

Table 7: Recommended plan of action

Description of action	Actor
1. Forming of working group	Dual management
2. Making decision about spoedplek	Dual management
3. Assessing reduction of waiting lists	Dual management
4. Formulation of collaboration and communication agreements	Working group
- Referral letter	
- Triage tree	
- Feedback	

12.1. Formation working group

The first step of the proposed action plan to form a working group. This group could develop and communicate parts of the action plan. Also, evaluation of the DDC and keeping the information up to date could be a responsibility of the working group. The working group can ensure that all interests are taken into account. The working group must be carefully assembled, all different stakeholders within the geriatric care in the service area of MST must be represented. Involving primary care contributes to safeguarding close collaboration of the primary and secondary care and creating broad support. This is essential according to the results of the research. It is recommended to also involve a GS because in the survey it was stated that coordination with the GSs could be of value. The working group should, in any case, consist of a GP, GS, (internist) geriatrician, nurse specialist and advisor Q&S. Ideally, there are working group members that are involved in Tussen de Lijnen and THOON.

12.2. Reducing waiting time

While the working group is being formed, the following step can be started in the meantime. Based on the results of the research, it can be stated that the long waiting time is a bottleneck in meeting the needs of the primary care professionals. Therefore, it is recommended to first focus on the reduction of waiting lists. The waiting times in the three hospitals in the Netherlands can differ during the year. Waiting lists are usually shorter in the winter compared to the summer. The three Dutch hospitals all have an average waiting time of two to four weeks. When the survey of this research was online, the waiting time for the GOC in MST was around eight to ten weeks. At this moment, the waiting time is around five weeks.

12.3. Decision about the spoedplek

In the meantime, a decision must be made regarding the ‘spoedplek’. This decision must be made by the responsible dual management (business manager and medical manager). The spoedplek is not mentioned by primary care professionals as a precondition in the survey. However, having the possibility for clinical admission of vulnerable elderly in MST is named by two respondents. This is

not an option, because of the considered policy of MST to not set up a geriatric clinic. The possibility of the spoedplek is discussed with the three hospitals. One of the hospitals does not make use of spoedplekken. However, when vulnerable elderly people are admitted in the hospital, the geriatric consultation team can be called in for a geriatric assessment. The other two hospitals make use of a spoedplek but mentioned that the facility is rarely used. Since patients and their relatives prefer extra time to prepare the hospital visit and rather wait two weeks, the timeslots are often filled in with regular consults. The hospitals stated that there is no need for this facility with short waiting lists. Therefore, it is advisable to make the decision about the spoedplek keeping the waiting times in mind.

12.4. Creating agreements

An important point that strongly emerged from the conversations with the three hospitals and the respondents' answers is the collaboration between primary and secondary care. The three hospitals stressed that good coordination is a result of many years of collaboration and cannot be enforced with protocols. Based on the results, it is advisable to focus on clear agreements, such as the RTA of region Utrecht. This regional agreement describes which criteria must be met in the referral letter of the referring professionals and the feedback letter of the secondary care professional. Another point raised by the three hospitals is the concept of the triage tree.

12.4.1. Referral letter

As described above, the advice is to aim at formulating agreements regarding the format of the referral letter. This can be done by the working group as described in the first step. The letter must contain a clear and focused question from the referring professional. Also, the letter must include the relevant medical history of the patient, medication overview and if present the advance care planning. It must be clear from the letter what the referring professional expects to achieve with the referral. Including a description of the wishes of the patient and family. Besides, the advice is that the letter contains a description of the actions and results of tests that already have been carried out. When the referral letter meets all criteria, double (medical) tests and other procedures could be limited for the patient.

12.4.2. Triage tree

This step of the action plan involves the creation of a triage tree by the workgroup. The three hospitals all mentioned the use of a triage tree (or referral tree). Once the referral letter has been received by the secretary, the decision-making tool is used to schedule an appointment. With the use of the triage tree, it can also be decided that the elderly patient can receive more appropriate care at another specialism in or outside the hospital. This way the DDC can function as a central point for care needs of vulnerable elderly. Also, it ensures that the patient receives the right care, on the right place, at the right time. This must result in fewer hospital visits for the patient and the prevention of (extra) medical tests.

12.4.3. Feedback

For this step of the action plan, the feedback provision of the secondary care to the referring professional is discussed. This action could best be carried out by the work group. Results show that the primary care professionals expressed their need for clarity of the feedback. Therefore, it is advisable to determine an acceptable maximum time within the DDC must provide feedback. Also, the format and the length of the feedback should be evaluated, because primary care professionals do not know what they can expect from the feedback. For instance, the feedback must consist of an overview of actions and outcomes, advice to the patient, recommendations for the referring professionals, adjustments of medication, follow-up appointments and wishes of the patient.

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Appendix A: Topic list of focus group

Table 8: Topic list focus group

Part	Points of discussion
Introduction	○ Welcome. ○ Introducing the participants ○ Invitation to share all ideas, opinions, suggestions and concerns. ○ What does the meeting looks like? What to expect? ○ The data will be collected and analysed anonymously. ○ Informed consent. ○ Do you have questions before we start?
Goals	○ Goal of research ○ Goal of meeting
Questions	○ Preferences of characteristics of innovation? ○ Factors to increase the successful implementation of DDC? ○ Preconditions of the DDC?
Rounding up	○ Is there something you would like to say of add? / Any other questions? ○ If interested in final report, please make a note!

Appendix B: Text fragments of focus group

Table 9: Relevant text fragments of focus group labelled

Text fragments	Factor
○ Long waiting time ○ Difficult with this capacity to see patients quickly ○ DDC should be place where patients are assessed broadly in short term	Waiting time
○ Screening vulnerability is done twice ○ Double examination is an extra burden for the patient ○ It is bas when tests are performed again ○ Preventing double visits to the hospital and double examinations	Visits
○ There is a need for the DDC	Need
○ GS involved in DDC ○ Look at bottlenecks in the field of collaboration ○ Have good collaboration, collaboration, with primary care ○ Describe the guidelines, there is none in our region yet ○ Integrated view: GP must be involved ○ Care plan with clear decision of tasks ○ Clear guidelines ○ Unclear who keeps the overview ○ What is possible in primary care, and is necessary in secondary care ○ Pharmacist felt left out, wants to be involved ○ Direct and clear communication ○ Communicate quickly	Collaboration
○ What does the patient want? What are their wishes? ○ Clear referral letter of primary care ○ What has been done? What is the question? What still needs to be done? In the referral letter ○ Clear referral criteria, What must the referral letter meet? ○ What is the care need? ○ Demand for the hospital must be clearly formulated ○ With a clear question the medical specialist can go to work and give feedback	Referral
○ Clear care plan is required ○ Clear feedback ○ Answer to the question and advice ○ Clear diagnosis, further with treatment plan ○ Focus of DDC on diagnosis and excluding causes ○ What criteria must the feedback meet? clear and appropriate policy for patient.	Feedback

Appendix C: Overview of preconditions of primary care professionals

Table 10: Preconditions of primary care professionals; per category with frequencies of answers

Category	Preconditions	N
Waiting time of the patient (from referral until DDC visit)	Total	17
	Short(er) waiting time	10
	Waiting time of days and no weeks	2
	Fast diagnostics	5
Number of hospital visits of the patient	Total	9
	All medical tests on one day	6
	No double medical tests	3
Perceived need of primary care professionals for DDC	Total	9
	Clear expressed need for DDC	3
	No need, a lack of added value DDC compared to current situation	6
Collaboration between primary care professional and DDC	Total	34
	Coordination of primary, secondary and tertiary care, alignment	13
	○ Clear communication between professionals	4
	○ Close involvement of the primary care	3
	‘Korte lijnen’, direct communication between professionals	8
	Collaboration with GS (integrated in DDC)	3
	Digital communication, joint electronic patient record	2
	Clear information provision towards patient and family	1
Ease of referral to DDC for the primary care professional	Total	28
	Working agreements	
	○ Central question beacon / no fragmentation	4
	○ Clarity about which patient can be referred to which place	3
	○ Referral letter with clear questions of the primary care professional	3
	Easy accessible, low threshold for referring patients	12
	Simple process of referral, the ease of referral	4
	Direct referral possible to DDC	2
Clarity of feedback of DDC back to the primary care professional	Total	24
	Content of feedback	
	○ Clear feedback	8
	○ Realizable and practical advice	4
	○ Long-term advice and clear follow-ups	4
	○ Unambiguous format of feedback	1
	Speed of feedback	
	○ Fast feedback	6
	○ Feedback on the same day	1
Expertise of staff working at DDC	Total	22
	Care professionals	
	○ Nurse specialist	2
	○ Incorporation of different specialism	1
	○ GS employed in DDC	3
	Sufficient expertise capacity, available expertise	5
	High quality of expertise	5
	A multi-domain approach, focus on multimorbidity of patient	4
	Clear and correct diagnostics and analysis	2
Other	Total	4
	Possibility of clinical admission patient in MST	2
	Patient friendliness of DDC	2
	Regional approach of DDC	1