Interprofessional communication and clinical leadership in the development of network-based primary care

Minke Nieuwboer

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LIST OF ABBREVIATIONS

ADL	activities of daily living
CANMED	Canadian Medical Education Directives for Specialists
CCM	chronic care model
CM	case management nurse
CMO	commissie mensgebonden onderzoek
COREQ	consolidated criteria for reporting qualitative research
CN	community nurse
EBP	evidence based practise
GP	general practitioner
IVR	interactive voice response
LPI	leadership practices inventory
MRC	medical research council
MMAT	mixed methods appraisal tool
NHS	national health service
PA	practice assistant
PDCA	plan-do-check-act
PN	practice nurse
RCT	randomized controlled trial
SBAR	situation-background-assessment-recommendation
SES	self-efficacy scale
WP	welfare professional

1.

GENERAL INTRODUCTION

Multiple professionals are usually involved in the care for people with dementia. In primary dementia care, collaboration is important and requires cooperation and communication between these professionals. Lack of interprofessional collaboration is one of the main causes of adverse events in patients and better integration of care is essential in health systems to achieve increased quality of care [1]. In this thesis, interprofessional collaboration in primary dementia care will therefore be the subject of in-depth evaluation.

Box 1: Illustrative case

Mr. W., 84 years of age, suffers from Alzheimer's disease and his daily functioning is quickly deteriorating. He has been married with Mrs. W. for 57 years. After caring for her husband for six years at a stretch, Mrs. W. is at the end of her strengths. Mr. and Mrs. W. receive care from community nurses and home care services, which support them with their activities of daily living. Three times a week, Mr. W. visits a daytime dementia activity center, where he is trained in walking by a physiotherapist. The general practitioner is responsible for treatment when additional medical problems arise.

When Mr. W. develops urine incontinence, Mrs. W. gets exhausted because of lack of sleep, and is unable to provide care for her husband any longer. The community nursing team assesses, together with Mrs. W. and her children, that Mr. W. is in the last stage of dementia and the end of his life is near. Mrs. W. decides that admission in a hospice-facility would be the best care option. A family meeting is planned with the community nurse and the general practitioner. During this meeting, it appears that the nurse and the general practitioner did not have any prior communication about Mr. W.'s situation and a shared care plan is lacking. Furthermore, the general practitioner is not convinced that Mr. W. is in a terminal phase and decides to refer him to hospital to be admitted for an additional assessment by the geriatrician. Consequently, Mr. W. stays in the hospital for a week. The geriatrician concludes that palliative symptomatic treatment is most appropriate and agrees with the family's deliberations, so that after some delay Mr. W. can finally be admitted in a hospice. After another three weeks in the hospice, he dies peacefully.

IMPACT AND COMPLEXITY OF DEMENTIA

In our aging population, the number of persons who suffer from one or more chronic diseases accompanied by physical or psychiatric co-morbidity, is increasing. Dementia is one of these diseases with rapidly rising prevalence. Today, in the Netherlands, about 270,000 people are estimated to suffer from dementia [2]. Moreover, dementia also challenges the healthcare system, as it is the costliest disease and poses heavy strains on the healthcare budget [3]. The Dutch government policy is aimed at reducing hospital and nursing home admissions, and stimulating care for older people, including persons with dementia, at home [4]. Consequently, primary health care is facing the challenge to manage care for an increasing number of older persons with dementia, and to arrange dementia care efficiently and effectively. However, the complexity of the disease and the fragmented primary health care system hamper efficient care arrangements [5, 6].

The complexity of dementia is characterized by deterioration of a combination of cognitive functions such as memory, thinking, judgement and language use. Due to these cognitive impairments, people with dementia experience behavioral changes and limitations in daily functioning. Since dementia syndromes differ widely in stage, aetiology and symptoms, standardization of care is difficult. Alongside this, most people with dementia are old and often diagnosed with other chronic conditions as well, therefore, they require different types of medical, care, and welfare services [7]. Moreover, caregivers of patients with dementia are often distressed and in need of support [8].

Because this complexity of needs, various healthcare professionals are often involved in one patient case (See Box 1). The need for interprofessional collaboration poses a huge challenge on the health care system. The Health Council of the Netherlands has concluded that the Dutch health care system is not yet prepared to deliver tailored care for persons with multi morbidity [9]. For several years, caregivers of people with dementia already have reported unwanted fragmentation in care and advocate for better coordination and communication between the different professionals [10].

In the Netherlands, the key disciplines involved in primary dementia care are: 1) medical professionals: general practitioners, and consulting specialists (geriatricians and elderly care specialists); 2) nursing professionals: community nurses, practice nurses, case management nurses and 3) social or welfare professionals: social elderly workers and respite care workers. Furthermore, allied health professionals, such as occupational therapists and geriatric physiotherapist are often engaged. These professionals mostly work for different organizations, which makes collaboration less obvious.

Due to these complexities concerning the disease itself and its care organization, present shortcomings in primary dementia care include i) lack of coordination and communication on the local level ii) inadequate tailoring of care, iii) inadequate access to dementia-specialized care, due to lack of collaboration of generalists (such as general practitioners and community nurses), and specialized professionals (case management nurses and geriatricians) [11] and consequently due to the complexity of care: iv) limited uptake of guidelines because guidelines' implementation often request change of organizational arrangements [12]. For the last three decades policy makers, as well as scientists and healthcare professionals postulate integrated care to be the answer to the complex care challenges, which might also be the best paradigm for primary dementia care [13-17].

WHAT IS INTEGRATED CARE?

Integrated care, as defined by the World Health Organization is a framework for the delivery of health care services such that people receive and perceive a continuum of health promotion, health protection and disease prevention services. Diagnosis, treatment, long-term care, rehabilitation and palliative care services are delivered through the different levels and sites of care within the health care system and according to their needs [18]. Over the last three decades, numerous different integrated care frameworks and models have been developed [16]. The most widely accepted model is the Chronic Care Model (CCM) [19]. CCM consists of six interrelated components: 1) health care organization, 2) community linkages, 3) self-management support, 4) delivery system design, 5) decision support and 6) clinical information systems. The CCM's perspective is quite broad and not specific for integrated primary care and CCM's implementation is known to be challenging as many factors influence the implementation process, such as the organization culture, the organizational structure and the level of support of leaders involved with the CCM implementation process [20, 21].

Implementation of 'network based care', one of the integrated care solutions, could better suit the integration of primary dementia care as it facilitates the collaboration between a group of different professionals, who are employed by several organizations, to improve the quality of care of a target population. These professionals have to work across the boundaries of their organizations (inter-organizational care) and have to achieve professional integration (inter-professional collaboration) [22].

The Rainbow Model for Integrated Care could provide a suitable theoretical framework for implementation of networked based primary care. This recently developed model has a clear primary care perspective and incorporates both interprofessional and interorganizational aspects (see Figure 1). With this model several types of care networks can be distinguished combining the functions of primary care with the different dimensions of integration on the micro (clinical integration), meso (professional and organizational integration) and macro level (system integration). Functional integration within this model refers to mechanisms through which financing, information, and management modalities are linked. It involves shared policies and practices for support functions across partnerships between different actors within a system. Normative integration refers to the development and maintenance of a common frame of reference (i.e. shared mission, vision, values and culture) between organizations, professional groups and individuals [23].

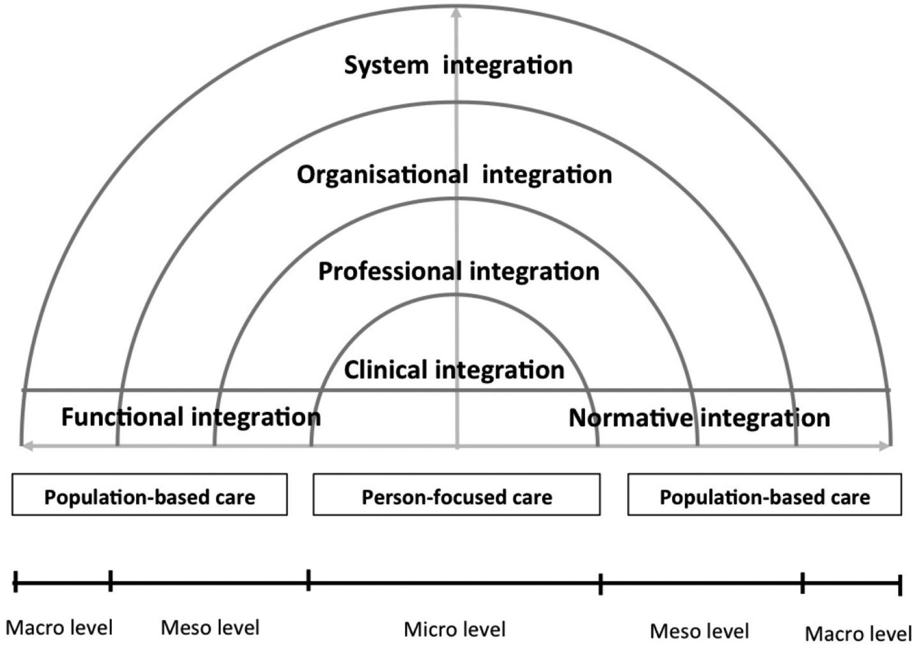

Figure 1: Rainbow model for integrated care [23]

ROLE OF COMMUNITY NURSES IN NETWORK-BASED PRIMARY CARE IN THE NETHERLANDS

The last decade, policy makers have been promoting the connecting role of community nurses in relation with general practitioners and other professionals in network-based primary care [24, 25]. Nurses are to become one of the key players to implement interprofessional collaboration together with medical and welfare disciplines in local networks. This recently acquired allying role has been stimulated by innovation programmes as 'Visible Link' [26] and 'Ambassadors for Community Nursing' [27]. Empowering nurses in their connecting role is important because collaboration between nurses and doctors may have a positive impact on a number of patient outcomes and sufficient educated nurses are needed. However, nurses' roles, tasks and responsibilities concerning collaboration in networks should be well described and required nurses' competences should be made explicit and trained accordingly [28].

INTEGRATED CARE SOLUTIONS FOR DEMENTIA IN THE NETHERLANDS

In high income countries, different integrated care approaches have been explored, that aimed to improve dementia care [5, 6]. In the Netherlands, three successive health programs for dementia care and care for vulnerable elderly were executed between 2004 and 2018:

1) The National Dementia Programme of the Netherlands (2004-2008). This programme was aimed at improvement of early detection, support of medical diagnosis, care coordination, timely referrals and information flows between professionals [29].
2) The National Care for the Elderly Programme (2008-2014) was aimed at improving the quality of care for the growing number of frail elderly and included also intervention for people with dementia [30].
3) Deltaplan for Dementia (2013-2020). Deltaplan is a collaborative to stimulate research, healthcare improvements and dementia friendly communities [31].

Until now, these programs resulted in the instalment of regional dementia networks. These networks are positioned on a meso level, in which healthcare organizations -more or less- together agree on what services they provide as a collaborative. In many regions, these networks organize the dementia case management services [32].

Other revenues of these programs were the development of several care guidelines and tools (for example the *National Care standard Dementia*). However, new programmes, guidelines and tools do not automatically lead to good quality of care. A large variety in the services and quality of care exists between different regions [33, 34]. This practice variation is even present on a much smaller and local level, for example with differences in care provided by general practitioner practices. Therefore, it is necessary to facilitate primary care professionals to improve the uptake of guidelines, knowledge and skills, and to address the many collaboration issues these professionals are faced with, including better connections between the regional and local levels of care. Transition towards non-institutional care, such as networked care, in which healthcare professionals from different healthcare organizations collaborate, is, however, still poorly explored [35].

NETWORK-BASED CARE TO IMPROVE DEMENTIA CARE: THE DEMENTIANET APPROACH

As stated above, many shortcomings in current dementia care in the Netherlands still exist and regional networks fall short in tackling these problems. Therefore, we designed the DementiaNet as a multi-component approach aimed at primary care 'local' networks. 'Local' means that professionals directly involved in caring for dementia patients are forming the network, and not the layer of managers (i.e. in regional networks). We stimulated practice improvement and facilitated the transition towards better primary care integration on the clinical, professional and organizational level, according to the Rainbow model. DementiaNet is aimed to support networks of primary care professionals to provide better care for people with dementia and their informal caregivers, who live at home within a specific community (population-based and person-focused care).

During the design process, we have used experiences from other network-based programmes, such as the successful ParkinsonNet and the national health programs for dementia care and frail elderly (www.beteroud.nl). We learned from ParkinsonNet that it is key to gather data on quality of care longitudinally, to be able to build a business case [36, 37], and that education to guide implementation of guidelines is one of the main connecting elements [38]. Also, clinical leadership appeared to be an important factor to stimulate motivation to improve quality of care [21, 38]. In the primary care programmes for frail elderly a large variation in levels of collaboration and quality of care was perceived [39], from which we concluded that an approach fitting local levels of quality of care and adapting to the degree of collaboration among professionals involved in the local primary dementia care was required. Tailoring the DementiaNet approach to the local context would be crucial to assure actual implementation.

This led to a DementiaNet programme containing four key elements: 1) structured local interprofessional collaboration, 2) clinical leadership, 3) Plan-Do Check-Act quality improvement cycles based on yearly provided quality benchmark feedback and 4) support in collaboration and knowledge and skills acquisition through interprofessional education.

Ad 1) DementiaNet facilitates structured local interprofessional collaboration between primary care professionals that are responsible for a shared case-load of people with dementia and their care givers. The rationale is as follows: we have concluded that previous programmes have mainly facilitated networked care on the regional level. Support of the local level needed more attention and exploration. Following the Rainbow Model, we reasoned that clinical and professional integration takes place on this level of integrated primary care [23]. Better structured local networks may, therefore, be an important clue for improvement of care coordination and reducing fragmentation of care.

Ad 2) DementiaNet facilitates and trains clinical leadership: at least one network participant leads the interprofessional local network. This network leader has to connect the different professionals, stimulate collaboration and support the quality improvement processes. The rationale is that clinical leadership is important in leading clinicians effectively through complex systems of care [40] and is studied in the context of collaboration improvement in the hospital settings for example in team training programmes for safer patient care [41]. Alongside this, we know from previous experience with integrated care projects in primary care, that professionals would need support in clinical leadership roles [42].

Ad 3) DementiaNet facilitates execution of Plan-Do-Check-Act cycles in small, rapid cycle tests of change based on quality feedback [43]. The rationale is that providing transparency about quality of care has been an important asset of ParkinsonNet and ultimately provided them with data and proved the effectiveness of care networks on triple aims goals. Quality feedback may help networks to account for extra efforts and investments. In addition, quality information guides networks to prioritize and select the quality improvement actions [44, 45].

Ad 4) DementiaNet facilitates interprofessional education within the network about self-selected topics based on recent guidelines. The rationale is that interprofessional education may be an important driver for interprofessional care [46]. We added the aspect of self-selection of topics to secure proper focus on the knowledge deficiency in a specific network, as a great deal of variation in uptake in knowledge and guidelines exist.

Box 2: DementiaNet, the implementation process

In February 2014, the DementiaNet project started with the development of the DementiaNet approach and the recruitment of potential network leaders. The first network was launched in January 2015, and gradually, other networks followed, until in January 2017, 20 local networks were activated. Thirteen of these networks participated in the evaluation study [47]. We managed to find follow-up funding for the continuation of the evaluation, entitled **‘**DementiaNet: Evaluation of Sustainability and self-organization of network-based care’. From this ongoing evaluation, we learned that participation of general practitioners is an important success factor, together with broadening the scope of the program to the target group of vulnerable elderly people with multiple complex problems. Therefore, we actively searched for collaboration with the regional organization of general practitioners, the CIHN/OCE, and we jointly managed to start up another 20 networks that focused on collaboratively improving the quality of care for vulnerable elderly. In the course of time, four networks stopped joining the DementiaNet program, in most cases, because the network leader was absent or the network failed to continue collaboration with the general practitioner’s practice. Today, the DementiaNet team is still involved in the support of some 40 networks and the number of networks is still gradually growing. By actively spreading the results of the DementiaNet studies, we aim to engage primary care professionals to improve the quality of care interprofessionally.

AIMS OF THIS THESIS: FOCUS ON LEADERSHIP AND COMMUNICATION

With the introduction of the DementiaNet approach we aimed to support the transition towards high quality care and improved collaboration and better patient outcomes. In the overall evaluation-study of DementiaNet we examined if networks that followed the DementiaNet approach moved as a whole towards improved quality of care and collaboration (Chapters 3, [48, 49]).

To achieve a better understanding of context-specific solutions of interprofessional collaboration, which contribute to better patient results, this thesis zooms in on two essential aspects of interprofessional collaboration: i) applying clinical leadership in local (dementia) primary care networks, and ii) improving communication between care providers with different professional backgrounds.

Clinical leadership in networks

In this thesis, we explore necessary competencies for network leaders and how to best support these clinical leaders in an integrated care setting. At the start of the development of the DementiaNet approach, we were not aware of any other integrated care programmes that included a leadership support programme. We then designed a clinical leadership programme, based on a literature search, and incorporated this into the DementiaNet programme. In the DementiaNet programme, nurses play an important role in connecting the different professionals in the community. In this thesis, the required visibility and role competency of nurses is given extra consideration and we will address if nurses can indeed be adequate clinical leaders in community care networks. This is the first focus of this thesis research.

Interprofessional communication

During the preparation phase of DementiaNet and the recruiting phase it became apparent that ineffective communication between community nurses and general practitioners hampered the formation of primary care networks. Initially, 42 professionals applied to join the DementiaNet program. However 26 of them were excluded because their network lacked readiness to attend the DementiaNet program, mostly caused by collaboration issues between community nurses and general practitioners. This is illustrated by several quotes from field notes that we logged during the implementation process.

> It took me some time to meet with the general practitioner. It was hard to get the message across and I could not convince him (general practitioner). Community nurse L1.

> The general practitioners were too busy. It took me six months to organize a meeting. However, it turned out to be that they (general practitioners) wanted to organize dementia care in their neighbourhood on their own. Community nurse L2.

Interprofessional collaboration between nursing and medical disciplines is essential for well-functioning of the local networks and comprises elements such as communication, trust, respect, mutual acquaintanceship and power that are often experienced as undefined and vague [35]. For this reason, we chose exploration of the community nurse-general practitioner communication as the second focus of this thesis, as this is an essential driver of collaboration.

The primary aim of this thesis is to unravel the complexity of networked primary dementia care with regard to clinical network leadership and interprofessional communication. There will be a special focus on the role of community nurses in these processes.
Firstly, we aim to describe the DementiaNet intervention and its evaluation. Secondly, we aim to evaluate the influence of clinical leadership on primary care integration. And thirdly, we aim to explore the actual communication practice between general practitioners and community nurses to discover clues for improvement.

THESIS OUTLINE

This thesis has the following structural elements. Chapter 2 describes the background, development and content of the DementiaNet approach. Chapter 3 is focused on the DementiaNet evaluation study. The design and protocol of the DementiaNet evaluation is described and the results of the overall DementiaNet-evaluation are summarized. Subsequently, Chapter 4 provides a systematic review of the literature on clinical leadership in integrated primary care. In Chapter 5, the results of the evaluation of the DementiaNet leadership training program are reported. Chapter 6 identifies influencing factors and strategies to improve communication between general practitioners and community nurses, and in Chapter 7 the actual communication between general practitioners and community nurses is further explored in search for improvement clues. Finally, Chapter 8 summarizes and discusses the findings of this study and includes recommendations for research and practice.

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2.

Triple aim improvement for individuals, services and society in dementia care: The DementiaNet collaborative care approach

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ABSTRACT

Background:

A redesigning of primary care is required to meet dementia patients' needs. In the Netherlands, current dementia care still falls short in areas including ad hoc collaboration, lack of feedback on quality to professionals involved, and insufficient implementation of established multidisciplinary guidelines.

Objective:

DementiaNet is a collaborative care approach, which aims to reduce the burden of the disease on individuals, healthcare services and society via network-based care that encourages collaboration, enhances knowledge and skills and stimulates quality improvement cycles.

Material and methods:

DementiaNet was developed to support primary care networks through implementation of five core processes: network-based care, clinical leadership, quality improvement cycles, interprofessional practice-based training and communication support tools, following a stepwise tailor-made approach. Alongside this, a mixed method study was designed to evaluate innovation and effectiveness.

Results:

Currently, 18 networks have been formed. These vary in quality of care and strength of collaboration due to local circumstances. Initial activities and goals of each network also vary, ranging from acquaintance to shared care plans. Ongoing research will identify barriers, facilitators and merits of the approach in increasing quality of care and ultimately improving outcomes for patient, carer, health service and society.

Conclusion:

Initial results show that clinical practice varies and the DementiaNet approach can lead to quality improvement. Complexity and variety of local care requires complex interventions and evaluation methods that account for this in order to safeguard the value for practice. Strict methodology lessens external validity.

BRIEF INTRODUCTION

The number of elderly people with cognitive problems who are still living at home is likely to increase. As a result, primary healthcare professionals will be increasingly required to manage and optimize treatment for dementia patients. This underlines the need to improve dementia care within primary care. We developed the DementiaNet collaborative care approach, which includes a gradual reorganization of care towards high-quality, network-based dementia care. The development, implementation, initial experiences and study design are described to evaluate the possible merits of this approach.

SHORTCOMINGS OF CURRENT DEMENTIA CARE

Although many initiatives have recently been designed, collaborative dementia care is still fragmented and far from optimal due to lack of disease-specific expertise and training and limited communication between healthcare professionals [1]. A collaborative approach could be especially important for dementia patients as manifestation of the disease is often complex and complicated by comorbidities, while loss of mental autonomy and disease awareness are specific for this disease, and determine specific care needs. Dementia patients have to cope, not only with dementia, but also with other chronic health and welfare problems. In a large Scottish study, 95% of all dementia patients also had relevant concurrent diseases [2]. Yet, collaboration between healthcare professionals is mainly scheduled ad hoc rather than structurally. This was also apparent in a Dutch study into the effectiveness of post-diagnosis dementia care of memory clinics versus general practitioners conducted in nine memory clinics [3]. In both study arms, the care process was relatively unstructured. Furthermore, care was insufficiently personalized and structured without formal assessment of individual problems and priorities or taking the individual context into account [4]. Personalization should also address informal carers, who are often faced with a high burden. Another limitation to current practice includes the lack of long-term monitoring of symptoms, signs, quality of life, caregiver burden, and feedback on quality of care and cost-effectiveness [5]. To tackle these shortcomings, the DementiaNet approach aims to reduce the burden of the disease for all involved in dementia care, including healthcare professionals, patients and their informal caregivers (quality of life, perseverance time), and societal (cost-effectiveness) impact.

DEVELOPMENT OF DEMENTIANET

DementiaNet functions as an overarching umbrella that facilitates the organization, implementation and maintenance of primary care networks, which are in direct connection with secondary care facilities for dementia. It was designed to support these networks to become an independent, sustainable and interprofessional collaborative, in which members can provide better quality of care and achieve higher effectiveness. Primary care for dementia patients in the Netherlands is characterized by complex social and financial developments. Due to the high societal and economic impact of dementia, the Dutch government, as many others, aims for high-quality and affordable dementia care. Between 2005 and 2016 changes were instigated through the financing of four successive national dementia and elderly care improvement programs. This created a nationwide regional network structure, deployment of dementia case managers and dissemination of multidisciplinary guidelines; however, incomplete implementation and lack of structural finance caused large variation in the acceptance and adherence to the new guidelines and regulations in clinical practice. Additionally, in 2015, the Dutch Government introduced radical reforms in the financial structure of primary healthcare, resulting in shifting responsibilities for welfare and care from national and regional levels to local governments at municipality level. Responsibility for welfare was transferred to local authorities. General practitioners (GP) act as gatekeepers for medical care and community nurses (CN) determine the amount of nursing care required. Case management is not yet structurally financed; therefore, funding varies between regions and case managers are not available for all dementia patients. This new financial arrangement has created much insecurity for healthcare professionals and institutes, as well as for patients and their carers in primary care practice. The DementiaNet approach was designed taking this healthcare complexity, shifting roles and variety in clinical practice into account. A stepwise, tailor-made and bottom-up approach was chosen. Various stakeholders were consulted in designing DementiaNet. Primary care professionals and representatives of elderly and dementia patients were interviewed on their experiences, barriers and facilitators in dementia care. The theoretical framework underlying DementiaNet includes collaborative network theories, such as the conceptual framework of partnership collaboration [6], which emphasizes the importance of addressing shared ambitions, mutual gains and relationship dynamics between network participants. We also applied best practice models on quality improvement, including the Improvement Model/Plan-Do-Check-Act (PDCA) [7] and Breakthrough Series Collaborative [8], and evidence from previously implemented collaboration models, e.g. the ParkinsonNet [9] and Healthy Aging Brain Care model [10, 11]. Finally, experiences from previous primary care network projects were used. For example, as the presence of active clinical leaders emerged as the key to successful implementation, clinical leadership was added as a central theme of DementiaNet [12].

CENTRAL THEMES

The DementiaNet approach consists of the following five central themes. These core themes form the basis for all DementiaNet networks, as the starting point for a stepwise, tailor-made approach.

Network-based care

Each DementiaNet represents a local interprofessional team that includes healthcare professionals from medical, care and social domains e.g. GPs, CNs, dementia case managers (CM), and welfare professionals (WP). A CM supports community-dwelling individuals with dementia and their caregivers during the care process, from the prediagnostic phase to nursing home admission. The CM regularly visits patients at home and coordinates medical and social care. The WPs support patients and carers with participation in the community. They also visit patients at home and organize activities in the community, such as day care activities. Together, these professionals form a network in a local neighborhood, which is characterized by the catchment area of the GP practice. Recent research findings about interprofessional collaboration in primary care [13] support the importance of a team vision, shared goals, formal quality processes, information systems and shared team spirit; therefore, development of collaboration and communication skills including all these aspects and jointly sharing responsibility for improvement of dementia care are key issues.

Clinical leadership

In the primary care setting, organizational and personal barriers can hamper collaborative team efforts, for example, lack of trust, absence of shared goals and lack of opportunities to meet [14]. Strong clinical team leadership is important to facilitate low-level redesigning of work, and achieve quality and efficiency improvements [15]; therefore, in each local DementiaNet network, at least one network participant is recruited to lead connection and quality catalysis. This network leader or network connector, must be able to connect the different professionals and stimulate collaboration. As this is a new role for many professionals, we developed a leadership program to provide support to these primary care clinical professionals.

Quality improvement cycles

DementiaNet network members are stimulated to use practical tools to enhance quality improvement of dementia care. The process of quality improvement begins with data acquisition to facilitate feedback reports on performance measurements [16]. An online questionnaire is distributed to the network participants. This questionnaire consists of multiple validated instruments, such as team skills, attitudes towards healthcare teams, prerequisites for collaboration [14] and knowledge about dementia. Furthermore, data on quality of care are gathered including a concise set of quality indicators derived from the Dutch multidisciplinary guidelines for dementia care [17, 18]. Benchmarking provides members with insights into their own quality compared to the average quality of care of all participating networks. The network is then encouraged to discuss quality feedback, select a problem for focus, formulate goals and design an action plan, according to the PDCA cycle [7]. This tailor-made approach stimulates a sense of urgency and ownership amongst network members towards improved care.

Interprofessional practice-based training and learning

Based on the feedback on quality of local dementia care and the action plan, we support the organization of practice-based interdisciplinary training on topics selected by the network participants. In these training sessions, examples from daily clinical practice are taken, in which complex cases are discussed to ensure integration of knowledge and practice. Teamwork can also be the focus of training sessions, as team competency is important for collaboration, although frequently lacking as healthcare professionals are often not actively taught to cooperate.

Communication

Successful collaboration in practice depends on clear and effective communication between the key disciplinary groups [19]; therefore, communication tools are provided. For example, an electronic communication tool for healthcare professionals and informal caregivers to discuss patient cases and coordinate actions. Additionally, an online community will enable interprofessional communication and networking between different local platforms, and secondarily, more specialized dementia expertise.

STEPWISE DEVELOPMENT OF A DEMENTIANET NETWORK

DementiaNet networks are formed via a stepwise approach. The program for each network is tailored to the members' own needs and priorities. This tailor-made approach requires the guidance of each DementiaNet team in applying the central themes. Various steps to support the network are undertaken over a 2-year period. As a wide variety of dementia care practice exists between regions, the DementiaNet approach must be adapted to local settings and needs. In some networks, team members already collaborate. Hence, these networks obviously require a different approach than those in which team members have never worked together before. In general, the following three steps are undertaken to form a network and enhance performance:

Step 1: Recruitment of network leaders.

The DementiaNet team organizes training sessions comprised of interprofessional workshops that address the DementiaNet themes. DementiaNet is also promoted in various local, regional and national healthcare meetings and through printed and online publications [20] to encourage professionals to start a network.

Step 2: Network leader forms local network.

If a potential network leader is interested to join the program, the network leader and DementiaNet coordinator assess the local situation together. Detailed insight into actual dementia healthcare provision in that specific community is crucial to optimize connection to other related healthcare initiatives. If the potential network leader can organize a group of interested professionals, preferably from medical, care and social services, the DementiaNet coordinator meets with this potential team to provide information about DementiaNet and gauge support. This step usually takes 3–6 months and requires the commitment of the potential network leader; it is a first test of the leadership of this individual's competencies. So far 18 network leaders have succeeded in establishing a DementiaNet network, 10 are still in the process of organizing the network and 17 healthcare professionals were not able to engage other professionals to jointly start a network.

Step 3: Implementation of the DementiaNet program.

This step encompasses the implementation of the central themes, according to an action plan with: monitoring of team performance, annual self-assessment of quality of care in the local network and interprofessional and practice-based education to enhance expertise.

Network leaders also join a leadership support program based on the UK National Health Service (NHS) healthcare leadership model [21]. This provides individual coaching and group session workshops to improve personal leadership skills. Regular meetings facilitate long-lasting collaboration and help develop a collaborative view on healthcare [14, 22] through open discussion of task coordination and responsibilities and conflicts of interests. Prerequisites for collaboration and reflections on team performance results are also discussed in local network meetings. During the 2-year program all network members attend interprofessional training workshops, often twice a year. Network members select training topics themselves, for example on recognition of cognitive decline, dementia diagnosis, complex behavioral problems and shared decision making.

SCIENTIFIC EVALUATION

An evaluation study provides insight into the possible merits of DementiaNet. The longitudinal mixed methods multiple case study design is in line with evaluation methods used for complex interventions. All DementiaNet networks serve as a case in this study and are followed over time. Quantitative data are collected at baseline and annually and qualitative data are collected throughout the course of the study to gain in-depth knowledge on processes and experiences of people involved i.e. care professionals, patients and informal caregivers. The evaluation study commenced at the start of the first network in January 2015 and will be concluded in the second half of 2017.

From the concept of evidence-based healthcare [22] it follows that local resources should be invested in those programs that have been studied and found to be effective. Regarding novel health care delivery systems, this is of great importance, as innovations occur in complex environments with numerous stakeholders and external influences that make the effects difficult to predict. This high level of complexity also applies to DementiaNet, emphasizing the need for a mixed methods design, especially as the approach is tailored to each network. In addition, innovations such as DementiaNet, are impossible to evaluate before implementation [23], and so implementation and evaluation occur simultaneously. For this, data are gathered from multiple sources for each network. Firstly, each network is rated on their network-based maturity, based on yearly structured interviews with the network leader(s). The rating is performed based on a Dutch model, The Primary Care Maturity Model, in which the level of network-based functioning is rated as one of four levels on eight domains [24]. Secondly, online questionnaires are completed by network members on instruments, such as team skills and attitude towards dementia. Each network is also requested to complete a set of quality indicators of care, as described, including indicators related to diagnostics in primary care setting, involvement of case management, geriatric assessment, care plan, polypharmacy check, and emergency consultations. Lastly, paper-based questionnaires are send to informal caregivers of patients within the network, including instruments to measure quality of life [25, 26], caregiver burden [27-29], satisfaction with care [30], and health services utilization. In addition to these data sources, in-depth interviews with care professionals in the networks, as well as informal caregivers and patients are performed to gain more insight into experiences with the DementiaNet approach, identify other possible merits or challenges and to find opportunities to enhance the DementiaNet approach to fit each situation better. We use semi-structured interviews which are transcribed verbatim and subsequently coded independently by two trained researchers after which consensus is obtained to ultimately lead to overarching lessons. Quantitative and qualitative data sources will be combined to reflect on our hypothesis. We hypothesize that network maturity level will change differently for each network, depending on varying baseline situation and improvement actions. We expect that quality of care, as measured by the quality indicators, will be associated with the network maturity and will increase if the network maturity has increased. We also measure informal caregiver reported outcomes; however, we realize that the timeframe of the current evaluation study might be too short to indicate significant effect, especially as these outcomes are indirectly influenced by the organization of networks. From the data, trends are examined over time by means of growth models. Not only are measurements within each network investigated but data between different networks are compared to identify improvement patterns. This is facilitated by natural contrasts between networks, as each baseline level differs and will vary in development during the 2-year course. Qualitative data enables us to explain findings and patterns. Additionally, specific elements of the approach are assessed for effectiveness, including the DementiaNet leadership program and communication between GPs and CNs, as key players within the networks.

INITIAL EXPERIENCES AND RESULTS

The first generation of DementiaNet currently includes 18 networks, distributed throughout the Netherlands. These networks are comprised of an average of 10 care professionals, and range from 5 to 22. The most frequently represented disciplines are GPs, CNs, CMs, and practice nurses. Other disciplines include allied health care professionals, such as physiotherapists and occupational therapists, and welfare professionals. In five networks, volunteers, interested groups or carers of dementia patients participate as team members. In total, the healthcare professionals in these networks provided care for over 278 community-dwelling dementia patients at baseline. As expected, the networks varied considerably regarding their situation on enrolment. Some networks had already worked together intensively for a long time and had already established reasonable levels of collaboration and communication. Of the networks six worked together in a program for complex elderly patients before they entered the DementiaNet program. Contrary, the majority of health care professionals were still focused on getting to know each other and formulating agreements on sharing responsibilities in care processes. This variety between networks is also reflected in the quality indicators, which show a large heterogeneity and indicate that improvements are still needed in several domains.

In general, the PDCA method to design quality improvement cycles is appreciated by healthcare professionals, as it requires them to focus on one or two specific aims at one time, for which they can draw up a concrete action plan. Since these cycles are based on each networks' own goals and priorities, a wide variety of improvement targets were defined, including: improvement of collaborative skills, increase knowledge on management of behavioral changes, implementation of shared care plans for all professionals involved, enhancement of diagnostic expertise in the general practice, and optimization of the format of multidisciplinary team meetings.

CONCLUSION

With DementiaNet, we aim to work towards high-quality, network-based care. These networks are organized on a local level, including healthcare professionals from medical, care and social disciplines. Based on theory, literature and experiences, we designed a stepwise approach to increase the quality of dementia care, including multiple elements on quality improvement, interprofessional learning and collaboration, and clinical leadership. So far, our initial experiences and results confirm the effectiveness of this DementiaNet design, as a tailor-made integrated care innovation, directly built on the differences and needs in clinical dementia practice. Although, initially, we aim to enhance dementia care, the basics of DementiaNet are general and might also, therefore, serve as a model to increase quality of healthcare for other populations, for example, frail elderly and patients that require palliative care.

PRACTICAL CONCLUSIONS

More patients with dementia will live at home for longer periods of time, which highlights the need to improve dementia care within primary care. DementiaNet improves local collaboration amongst primary healthcare professionals to provide care for community-dwelling elderly with dementia and their informal carers. Our mission is to deliver added value for patients, caregivers, healthcare services and society, by realizing an innovative, cost-effective change in care processes, finely tuned for local, collaborating professionals. We engage patients and carers, and start from their perspectives, which we adopt in line with network and system-based methodologies. As many themes and activities are generally applicable, the DementiaNet approach might also serve as a model towards enhanced collaboration and quality improvement for other populations.

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Evaluation of DementiaNet, a network-based primary care innovation for community-dwelling patients with dementia: protocol for a longitudinal mixed methods multiple case study

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ABSTRACT

Introduction:

Primary healthcare professionals will increasingly be required to manage and optimize their treatment for patients with dementia. With DementiaNet, we aim to reduce the burden of dementia on healthcare services and society through implementation and facilitation of integrated network-based care with increased dementia expertise. DementiaNet is designed as a stepwise approach including clinical leadership, quality improvement cycles and interprofessional training, which are tailor-made to the local context. For example, the composition of the network and improvement goals are tailored to the local context and availability. Here, we describe the linked evaluation study which aims to provide insight in effectiveness, process and mechanism of the DementiaNet approach through an innovative evaluation design.

Methods and analysis:

We designed a longitudinal, mixed methods, multiple case study. Study population consists of two levels: (i) local DementiaNet networks of primary care professionals and (ii) patients and informal caregivers who receive care from these networks. At the start and after 12 and 24 months, quantitative data are collected for each network on: level of network maturity, quality of care indicators and outcomes reported by informal caregivers of dementia patients. We assess changes in networks over time and the association with quality of care and informal caregiver-reported outcomes. Throughout the study, logs about each network are registered. Additionally, semi-structured interviews with network members and informal caregivers will provide insight in experiences and opinions regarding effects and mechanisms through which changes in quantitative outcomes are effectuated. Rich narratives will be constructed about the development of the local networks using collected data.

Ethics and dissemination:

The study protocol was reviewed by the local medical ethics committee; formal judgement was not required (protocol number: 2015–2053). The findings of this study will be disseminated through peer-reviewed publications, conference presentations and presentations for healthcare professionals where appropriate.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- Primary care innovations are not always subjected to the right rigorous evaluation, especially if their complexity is at odds with the conceptual assumptions of the randomized controlled experiment. This evaluation study adds to evidence-based healthcare, by employing research methods that help to understand whether DementiaNet is effective or not and focuses on why, how and in which context certain outcomes can be expected. Therefore, comprehensive data collection is designed with quantitative and qualitative methods.
- The knowledge resulting from this longitudinal multiple case study emanates from theoretical generalizability rather than statistical generalizability, and may have great importance in allocating healthcare resources in such a way that patients benefit most.
- Quality indicators of care were derived based on widely supported primary care guidelines and were developed specifically for the current study to fit the innovation. Hence, these have not been employed in research before. Indicators' face validity has been established and will be reviewed for feasibility and reliability before final data analyses.
- The time span of the current evaluation study is likely too short to result in impacts on informal caregiver-reported outcomes; however, it may provide important data for further evaluation of DementiaNet with extended follow-up.

INTRODUCTION

Healthcare needs of elderly are characterized by high prevalence of chronic conditions, multimorbidity and strong heterogeneity between individuals and over time [1]. As a result, numerous health and social caregivers are involved in care for this population. Additionally, over the last years, care systems and services have changed with a shift from long-term residential care facilities towards increased community-based care for elderly, resulting in increased requirements for primary care. Despite many initiatives, care arrangements are still sub optimally designed to deal with the complexity of care, that is, the large number of different available services, the involvement of many different professionals and the accompanying lack of certainty and agreement about the best treatment plan. This has led to a lack of integration, coordination and continuity [2-5]. Possible explanations might be the facts that, in general, new guidelines are not fully taken up in clinical daily practice and are not adapted to each other, and improvement strategies merely target only parts of the system or aim at regional instead of local systems.

Community-dwelling patients with dementia present an illustrative example of the challenges that are posed on complex chronic primary care. First, much diversity exists in care needs since both the manifestation of dementia and the patients' social contexts are multiform. Second, many different primary care professionals are involved from different health and social disciplines to provide care for patients with dementia. This urges the need for a high level of collaboration, as clinical practice is still mainly characterized by ad hoc collaboration. Hence, reorganization of primary care is needed, in a way that is innovative, effective, scalable and also cost-effective [6]. An overview of usual care is provided in box 1.

Education alone is insufficient to improve primary dementia care [7]. Also, interventions targeted at improving case management, a crucial factor in primary dementia care, show limited improvements on outcomes such as caregiver burden [8] or care needs and quality of life [5]. Another UK-based analysis showed disappointing results from efforts on dementia recognition, diagnosis and management [9, 10]. In contrast, innovations aimed at a more comprehensive system, such as the PRISMA model for integrated service delivery system for frail older people in Canada, were positively evaluated on several relevant outcomes such as functional decline rate and unmet care needs [11]. Another intervention study that targets dementia management in primary care as a whole, the Delphi study in Germany, shows promising preliminary results (on general practitioner attitude and caregiver burden) [12], but is yet to publish the overall results.

Box 1: Usual primary dementia care and DementiaNet care

Usual care for patients with dementia in the Netherlands:
Dementia care in the Netherlands is characterized by practice variation among regions. The most important characteristics and common shortcomings are:

- key players in primary dementia care are general practitioners, practice nurses, case managers, community nurses;
- originally focused on acute episodes of single diseases instead of chronic multimorbidity patients;
- care is fragmented with professionals working in their own domain, with limited interprofessional communication and ad hoc collaboration;
- many professionals do not know each other, are unfamiliar with each other’s disciplines, responsibilities and competencies;
- there is little adherence to guidelines;
- knowledge about dementia diagnosis and management is often insufficient.

Care with the DementiaNet innovation:
The DementiaNet innovation aims to promote a shift, addressing these limitations, towards integrated dementia care through:

- network-based care with high levels of collaboration;
- a network leader to stimulate and coordinate the network;
- care improvement through quality improvement cycles with tailor-made goals and improvement plan to fit the situation of each individual network;
- high dementia-specific expertise through interprofessional training and practice-based learning.

Both the necessity and possibility for improvement in primary care for patients with dementia are evident, which led to the development of DementiaNet. This innovation aims at network-based care for community-dwelling patients with dementia, following a stepwise, tailor-made approach. The innovation is integrated with a parallel running evaluation study which aims to assess implementation of DementiaNet in primary care, and to assess the merits and harms of this approach.
DementiaNet is complex in nature, as it alters a services delivery system with many different players involved and many external factors potentially influencing the pathways through which effects can be accomplished. The evaluation study, thus, has to fit the complexity of the healthcare innovation. In contrast to most medical and healthcare research where the influence of context is minimized, this is of particular interest in the evaluation of complex innovations. Therefore, research should not solely be aimed to answer the question of 'does it work?', but should prioritize on how and why does it work [13]. Therefore, the current evaluation study aims to answer the following questions: what are the merits and drawbacks of the DementiaNet approach; how are these achieved and which factors influence these processes? This paper describes the innovative methods used for the evaluation of DementiaNet along with background on these methods.

METHODS

DementiaNet Innovation

With DementiaNet we work towards high-quality, network-based care, which is organized on a local level with professionals from medical, care and social disciplines. DementiaNet aims to optimize care processes and outcomes, both from a perspective of community-dwelling patients with dementia and their informal caregivers, as well as from care professionals' perspective. This is pursued through multidisciplinary network-based care with a high level of collaboration. A tailor-made approach is employed to ensure fit to the large practice variation as seen in daily clinical practice.

DementiaNet encompasses the transition towards network-based care through practice facilitation [14]. These clinical networks are designed in primary care, and include professionals from multiple disciplines and from varying organizations. Hence, these networks include collaborations between individuals and organizations across institutional and professional boundaries. These clinical networks thereby ensure quality of and access to care for patients, including those who require coordination of care across a range of settings [15]. This is pursued through formation of networks of primary care professionals who jointly and locally provide care to a number of patients with dementia, desirably including at least one professional of the medical (eg, general practitioner), care (eg, community nurses or case managers) and welfare (eg, social workers) discipline. Inclusion of healthcare professionals is adapted to local sources and needs. As a consequence, each network in the programme is different from another in terms of size, represented disciplines and starting level of collaboration and care. A baseline data collection assessment takes place to map the starting position of the network. This includes measurements regarding network members and their backgrounds as well as the quality of care in their network. Feedback of the findings in the baseline data collection is then provided to the networks. Local network meetings are scheduled which start by making several actions to improve dementia care. These goals and actions are part of the quality improvement cycle, which are tailor-made to each networks' specific situation. Tailoring the approach to fit their local diversity is key in this innovation [16].

Each network will employ four key components that are central to the approach of DementiaNet. Primarily, it relies on network-based care. The professionals in the network generally share a caseload of patients, the majority of whom have multiple professionals involved, requiring structured and organized collaboration to ensure continuity in care.

Second, the network leaders take up a central role in the process. Their task is to connect all professionals in the network and to stimulate and facilitate collaboration and improvement actions. Specifically, there is a leadership support programme for network leaders to help them take up this role.

Third, networks work through quality improvement cycles (Plan-Do-Check-Act (PDCA)). This means that at the beginning of each PDCA cycle, a comprehensive assessment is performed to get an overview of the quality of care and their network characteristics. The network jointly identifies improvement goals based on this measurement and their own experiences. A plan is drawn up with specific actions, tasks and a timeframe to achieve their goals. At the end of the yearly cycle, another assessment is performed to evaluate improvement and to identify new goals.

The last key element has a facilitating function. Interprofessional training and practice-based learning are used to increase knowledge and competencies. The contents of these training and coaching sessions are tailored to each network's own goals, as they have different starting levels and different improvement goals. Preferably, the training topics are linked to the quality improvement cycles. Also team training sessions are applied to increase team coherence, with sufficient team working skills, attitudes and competencies in the individuals involved in the team. Furthermore, professionals from different networks can take part in other sessions that were planned for these groups together, to be able to learn from each other and from best practices. More detailed information on the development of the DementiaNet innovation are described elsewhere [17].

Study design and population

The evaluation study is designed as a longitudinal, mixed methods, multiple case study [18]. Each participating network serves as a case in this study. Networks will be followed over time. Quantitative data will be collected at baseline and after every 12 months, with a maximum of three measurements within the current study period (January 2015–July 2017). Qualitative data will be collected throughout the course of the innovation programme to gain in-depth knowledge on processes and experiences of involved persons (ie, care professionals, patients and informal caregivers). Triangulation of quantitative and qualitative data will be used to strengthen insight in patterns.

The study population consists of two levels. The first level includes the local DementiaNet networks participating in the DementiaNet programme. The second level includes patients and informal caregivers who receive care from care professionals in these local networks.

Data collection

We will collect data from multiple sources to describe the networks and to measure outcomes. First, for each network, data will be documented by the research team regarding the number and discipline of professionals involved. Log documents will be kept for each network with information on the process of network formation and actions taken before enrolment of networks into the programme, as well as specifics that may influence the way their network develops and is able to execute the quality improvement cycles. Of this log, a narrative is to be constructed about each network. Additionally, a yearly online questionnaire will be distributed among network members, including instruments including their attitude towards healthcare teams [19] and dementia [20], their perceived team skills [21] and enabling factors for collaboration [22].

The following data will be collected to assess the effects of the DementiaNet innovation on care processes and outcomes (figure 1):

Network maturity

Network maturity is defined as the level at which the care professionals operate as a network. To assess the starting level and changes over time, we will use a model for integrated primary care called the 'Primary Care Maturity Model' [23], which includes eight items in three domains: (1) person-focused care, population-focused care; (2) clinical integration, professional integration, organizational integration, system integration and (3) functional integration, and normative integration. Each item is rated on four defined levels, ranging from (1) ad hoc, through (2) defined, and (3) controlled, to (4) synchronized. By summing the scores on the eight domains, a global maturity score will be derived for each network for each measurement point, reflecting their network maturity at each time.

The rating of network maturity will be based on information obtained directly from the networks by means of interviews. Structured interviews with the network's leader(s) will be held at each measurement point (baseline and after every 12 months) by an independent researcher. An interview guide is developed based on the content of the Primary Care Maturity Model in such a way that sufficient information is obtained on each of the eight items to be scored. This approach is chosen in order to allow a certain degree of flexibility to each networks composition and context, while still targeting the specific topics to be scored. Interviews are recorded on audio tape and stored until the end of the evaluation study. At that point, another independent and blinded researcher, who is unfamiliar with the study design and networks in the programme, will be instructed to rate the eight aspects of the Primary Care Maturity Model based on the information in the interview, to obtain the global network maturity score.

Quality of care indicators

Quality of dementia care will be assessed by means of quality indicators. The quality indicators will be reported on by the local networks through a registration file. A composite score will be constructed of the indicator scores of the final quality indicators to obtain a single overall score reflecting the network's quality of care.

This set of quality indicators was developed by an expert panel consisting of a geriatrician, general practitioner, community nurse/researcher, primary care researcher, epidemiologist and geriatric researcher prior to the current study to fit this particular evaluation. As it regards an innovative services delivery approach, it therefore requires different indicators then have already been developed for primary care settings. First, a framework was drafted with the basic concepts of the DementiaNet innovation, which were translated into criteria and subsequently operationalized into indicators that care should meet. These were checked to comply with relevant current guidelines and agreements regarding primary dementia care. Consensus on 13 final indicators was reached after multiple meetings in which relevance and feasibility of indicators were reviewed, as well as the comprehensiveness of the total set. This set was tested for face validity, acceptability and perceived feasibility in a pilot survey among 18 primary care professionals and showed good results on every aspect.

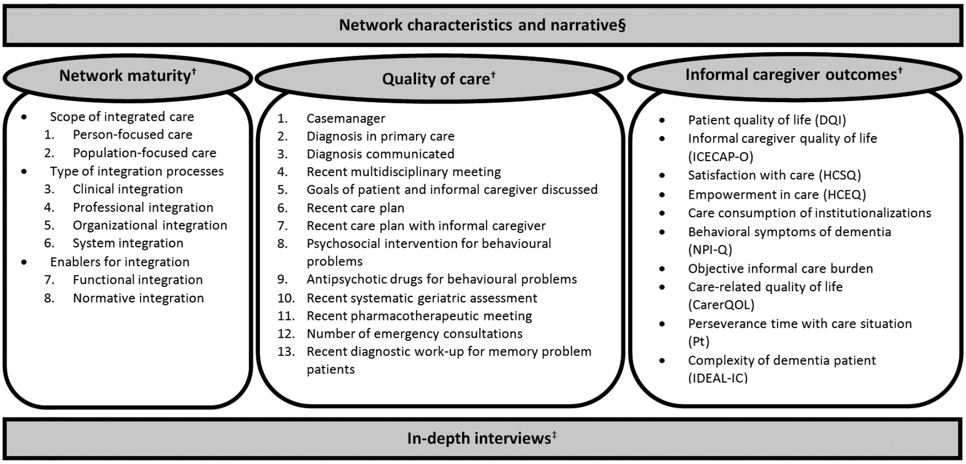
As these indicators have not been used before, they will be subjected to additional assessment based on the baseline data before the actual analysis of the data. Assessment will ensure the use of only reliable indicators, for instance, taking into account missingness, floor and ceiling effects and coherence with definitions. Therefore, the final set of indicators used in actual data analysis is expected to be more concise.

Informal caregiver-reported outcomes

Data on informal caregiver-reported outcomes will be gathered through paper-and-pencil questionnaires. Patients will be informed about the project and associated evaluation study through a letter from their general practitioner. This letter includes an answering card in which they can indicate whether they are interested in participation in an informal caregiver questionnaire. If so, the research team will contact them to obtain consent from informal caregiver and the patient where possible, and the postal address to send them the questionnaire. The informal caregiver questionnaire consists of demographic questions about the patient and informal caregiver, as well as validated instruments on several outcomes (figure 1).

Experiences and perspectives

In conjunction with the quantitative evaluation, a qualitative approach will be employed. For this part of the evaluation study, we will use semi-structured interviews with both care professionals in the networks as well as patients and informal caregivers. These data will provide insight in experiences and complex processes influencing potential results to be examined in the quantitative part. Interviews will be held by a trained researcher, starting after the first year of the project. By purposive sampling of participants, we aim to include relevant perspectives from different disciplines of care professionals, as well as patients and their informal caregivers originating from different networks.



Network characteristics and narrative§

Network maturity[†]

- Scope of integrated care
  1. Person-focused care
  2. Population-focused care
- Type of integration processes
  3. Clinical integration
  4. Professional integration
  5. Organizational integration
  6. System integration
- Enablers for integration
  7. Functional integration
  8. Normative integration

Quality of care[†]

1. Casemanager
2. Diagnosis in primary care
3. Diagnosis communicated
4. Recent multidisciplinary meeting
5. Goals of patient and informal caregiver discussed
6. Recent care plan
7. Recent care plan with informal caregiver
8. Psychosocial intervention for behavioural problems
9. Antipsychotic drugs for behavioural problems
10. Recent systematic geriatric assessment
11. Recent pharmacotherapeutic meeting
12. Number of emergency consultations
13. Recent diagnostic work-up for memory problem patients

Informal caregiver outcomes[†]

- Patient quality of life (DQI)
- Informal caregiver quality of life (ICECAP-O)
- Satisfaction with care (HCSQ)
- Empowerment in care (HCEQ)
- Care consumption of institutionalizations
- Behavioral symptoms of dementia (NPI-Q)
- Objective informal care burden
- Care-related quality of life (CarerQOL)
- Perseverance time with care situation (Pt)
- Complexity of dementia patient (IDEAL-IC)

In-depth interviews[‡]

Figure 1: Overview of data collection for the evaluation of the DementiaNet innovation. §Continuous collection of data; †Data collected at start and after 12 and 24 months; ‡Data collected at one time point in a selected number of networks. References for the informal caregiver outcome instruments [37-46].

Analysis

It is expected that this innovation has effects on multiple levels which may vary. Also, it is expected that the networks have different starting levels and divergent progression rates. Hence, the study considers both within and between network analyses, as follows.

Within each network, all data sources will be conjoined in order to identify any changes resulting from the DementiaNet innovation. We will look for patterns in trends over time in quantitative measures and we look for possible explanations for trends in activities carried out by the networks and their improvement goals. More specifically, we will look into associations that follow from a hypothesized pathway of effects, where we expect that network maturity will increase over time, and will be associated with quality of care as measured by the quality indicators. Potentially, an increase in patient-reported outcomes will eventually follow the increases in quality of care. This will be analyzed by using mixed effects growth models to account for repeated measures and clustering of data within networks. As the course of this innovation will proceed differently in each network, there will be a natural contrast between different networks with regard to the maturation into networks and the subsequent approach to care. Given the fact that these aspects will be also monitored over time within each network, this will allow for cross-case comparisons. This approach has been used previously, for example, on an integrated services delivery system in primary care for elderly, in which they monitored the degree of implementation of integrated services in a quantitative manner [24]. In outcome evaluation studies, such a quantification of implementation can be used as a measure of 'dosage' of the intervention to be able to look for dose-response patterns to strengthen plausibility of found patterns.

By comparing cases (ie, cross-case comparison) on the extent these have matured into a coordinated network and how much improvement efforts have been made and output (ie, trends in quality of care and informal caregiver-reported outcomes), it will be possible to increase plausibility of causality to attribute changes to the DementiaNet innovation similar to a dose-response manner.

Furthermore, the qualitative data from the semi-structured interviews will be used to explore experiences of professionals and patients and informal caregivers with the DementiaNet innovation. A thematic analysis will be used to analyze the verbatim transcripts of the semi-structured interviews. The analysis will be partly guided by a predetermined framework of potential experiences and perceived benefits based on the development of the innovation. We will remain open to discovering unanticipated nuances and topics in the data. First, transcripts will be independently coded by two trained researchers. Subsequently, both coding schemes will be jointly reviewed to reach consensus about most appropriate coding. After that, codes will be categorized and major themes will be identified by the same two researchers. Lastly, both researchers will independently draw overall findings from the codes in each category, after which a consensus round will be applied to these findings. Qualitative data analysis will be performed in Atlas.ti software.

The findings from these qualitative data will be conjointly used with the quantitative findings in the interpretation phase of the study in multiple manners: a) through triangulation, to corroborate findings and provide a stronger basis for conclusions, b) the qualitative findings will be used to augment quantitative findings, c) the qualitative findings will be used to identify unexpected and/or unintended effects that are not covered by the quantitative data.

DISCUSSION

DementiaNet is an innovation that aims to tackle the current shortcomings in primary care for patients with dementia by effectuating a transition from ad hoc collaboration towards more integrated network-based care with increased dementia expertise. With the current evaluation study, we aim to provide insight in implementation of the DementiaNet innovation and its merits and harms by means of a longitudinal, mixed methods, multiple case study. Here, we will also take DementiaNet as an example of a complex intervention to elaborate further on the viewpoint that rigorous evaluation of these types of innovations in health services systems is essential and which considerations should be taken into account when designing such an evaluation study, to ensure adequate capturing of the complexity while achieving high external validity.

Rationale of the study

Unlike clinical treatments, innovations in health services and primary care are not always subjected to rigorous evaluation [25-27]. Such evaluation studies add to evidence-based healthcare, which is essential in order to distinguish innovations that change healthcare organizations for the better, from those that lack beneficial effects. Such knowledge has great importance in allocating healthcare resources to spread innovations and ensure actual implementation.

Innovations in health services systems are often complex in terms of multiple components that interact, the number of involved professionals, the extent to which they have to alter their behaviors and the flexibility and tailoring necessary to fit the situation in which it is implemented [28], which is particularly the case in the DementiaNet innovation. In such complex innovations, it is often difficult to accurately predict to what extent and through which pathways the intervention may affect outcomes, and how the context in which it is implemented influences these pathways. In other words, it is hardly possible to predict if and how healthcare innovations will lead to the intended outcome [29-31]. Many examples exist of previous efforts in healthcare innovations that seemed promising but did not induce the desired changes, or even worsened outcomes or expenses [31, 32]. For instance, interventions aimed at reduction of emergency admissions have failed to produce the desired outcomes or even produced counterproductive outcomes because several aspects had been ignored, such as alternative explanations, regression to the mean and supply-induced demand [33]. The degree of uncertainty in effective pathways through which interventions work and therefore the results they lead to, increases with a higher degree of complexity of healthcare change. In general, but especially in times of limited resources, it is of invaluable importance to evaluate innovations in healthcare services to know which ones are worth adopting and investing in.

Study design

From the viewpoint that evaluation is indispensable, one inevitable choice is the optimal study design. From the perspective of traditional scientific (statistical) generalization, the highest form of evidence for efficacy of interventions comes from randomized clinical trials (RCTs). The key methodological components of an RCT are the use of a control group and random assignment to groups to balance distribution of potential confounders, to allow for causal inferences. These components ensure high internal validity, but often limit external validity. However, several differences are encountered between the evaluation of relatively simple (medical) interventions and of complex healthcare innovations. For instance, the nature and complexity of health services innovations often cause assumptions underlying the RCT design to not be upheld, therefore compromising internal validity of RCTs and thus advocating the use of alternative study designs [34]. The most often violated assumption is the assumption of context independence, but the assumption of equipoise may not apply if preference for the intervention over usual care exists.

The DementiaNet innovation is complex on multiple aspects, according to definitions from the Medical Research Council (MRC)[28, 35]: it consists of multiple interacting components; healthcare professionals have to alter their behaviors considerably and multiple organizational levels are targeted. Additionally, the innovation is tailored to the specific situation of each local network, which has been recognized as a logical fit for complex interventions to be adapted to local contexts rather than completely standardized [28]. Logically, the context in which the intervention is implemented is of great influence and therefore of interest to the evaluation. This will be taken into account by constructing narratives of each network with specific attention to their context and by looking for patterns in different contextual factors that may account for different trends in outcomes.

For these reasons, we designed the evaluation study as a longitudinal multiple case study. The unit of analysis is the individual network participating in the DementiaNet project. This makes it impossible to set up a comparable control unit, as these networks do not exist yet without the innovation. Additionally, necessary investment in data collection was not endorsed by professionals if participation in the project was not ensured. In case studies, the context is explicitly taken into account as part of the evaluation, in contrast to experimental designs which employ the opposite approach by controlling the context as much as possible [18]. Therefore, a multiple case study is found very suitable for this type of evaluation. In a multiple case study, each case can be seen as a single experiment. Hence, a multiple case study may then be considered the equivalent to multiple experiments. Under this assumption, generalizing from case studies can be equivalent to generalizing from experiments [18]. Inferences are drawn both from within-case changes over time and cross-case comparison. The longitudinal multiple case study design allows for the addition of this latter approach, thereby providing the potential to replicate findings and identify patterns, which increases explanatory power and generalizability of findings [36].

Although there is a certain selection underlying the participating networks in the evaluation study, we believe that the results will extrapolate to other locations as well. This is assumed because the innovation is not specific to this innovators and early adopters group, but is applicable to every network as it is strongly tailor-made to the specific needs of every network. We will evaluate the suitability for networks that start at higher and lower levels of collaboration and quality, leading to higher external validity.

Each network is enrolled into the evaluation study as a case on starting in the project. Hence, the evaluation study commences at the same time as the implementation of the innovation. This timing allows for the most optimal within-case comparison between the situation right before implementation started and during increasing levels of implementation within the network. This outweighs the fact that effects take time to develop and thus may not come to full fruition within the timeframe of the study in our opinion as it strongly increases the validity of inferences to be drawn from this evaluation.

Expectations

Successful transition towards network care will be evidenced by an increase in the rating of network maturity. It is expected that this is not the case in all networks, as some probably fail to succeed in transitioning after the starting initiative to take part in the innovation, for instance, because of organizational problems or because network leaders are unable to fulfil their role. Moreover, it is expected that rating of network maturity is associated with the score on quality of care as measured by indicators. Hence, we expect that quality of care scores will increase along with network maturity, although possibly with a considerable delay. It is not hypothesized that informal caregiver-reported outcomes will already be affected by the DementiaNet innovation in a way that is timely and strong enough to be picked up by this evaluation study. However, as it is an extension of the hypothesized pathway and the ultimate goal of many health services innovations, we do consider the inclusion of these outcomes relevant to incorporate the patient and informal caregiver's perspective to expand on in further studies.

We expect that the mixed methods design provide us with insight in how the innovation actually was implemented in each network, how it worked and which contextual aspects influenced this. Furthermore, we expect information on which aspects of the innovation are most effective in which circumstances. Possibly, the innovation and future implementation can be improved with this information. Next to highly valuable data for effective and efficient network-based care for chronic conditions in older populations, starting with dementia care, this study may yield important methodological data on the value of a multiple case study analysis for other complex interventions as well.

In the meantime, the results of this study were published as:
Richters A, Nieuwboer MS, Olde Rikkert MGM, Melis RJF, Perry M, van der Marck MA. Longitudinal multiple case study on effectiveness of network-based dementia care towards more integration, quality of care, and collaboration in primary care. PloS one. 2018;13(6):e0198811.

ABSTRACT

Introduction:
The rising incidence and policies to keep dementia patients in their own homes are increasingly putting pressure on primary care systems and budgets. The DementiaNet program stimulates development of primary care networks of medical, nursing and welfare professionals for community-dwelling dementia patients through practice facilitation. This study aimed to provide insight into the merits and drawbacks of this program, mechanisms and which contextual factors influenced them.

Methods:
In this longitudinal mixed methods multiple case study, primary care professionals with shared caseloads of dementia patients, were enrolled to form networks in the DementiaNet program. Data collection consisted of continuously kept logs, yearly structured interviews to rate the network maturity score (range 0-24), yearly quality of care assessment through a sum score of quality indicators (range 0-100), and in-depth interviews regarding experiences and perceived effects. Quantitative data were analyzed through mixed models; qualitative data with thematic analysis. Results were integrated by combined interpretation.

Results:
Thirteen networks were successfully initiated in the program, consisting of a median of 9 professionals. Overall, the networks showed an average yearly increase of 2.03 (95% CI 1.20-2.96) on network maturity and 8.45 (95% CI 2.80-14.69) on quality indicator sum scores. Mixed methods interpretation revealed patterns regarding network and contextual factors enabling the transition towards more mature networks and better quality of care. Participating professionals reported more personal contact, more coordination, better communication and the network-based care contributed to more mutual respect and trust.

Discussion:
Time trends in network maturity and quality of care indicators showed overall improvements. Several enabling factors for the transition to network-based care were identified including strong and adequate leadership (preferably with leaders from primary care practice), high involvement of motivated primary care physicians, high acquaintanceship with other network members, and network size with a compact network that operates in a relatively small geographical area.

Conclusions:

Participation in the DementiaNet program was associated with increased network maturity and subsequent beneficial effects on quality of care. Adaptation towards a more mature network seemed to favor quality of care improvements.

Lessons learned:

The multiple case study design demonstrated its value in the evaluation of DementiaNet as example of a complex health care innovation by incorporating interactions and contextual dependency.

Limitations:

The main limitation of the study was the limited follow-up. The DementiaNet approach demands considerable changes in behavior and practice from large numbers of actors; such adaptations require time and will be different per network. Indeed, networks work different in speed of change and improvement goals. Nonetheless, these initial results show improvements even over one and two year timeframes.

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Clinical leadership and integrated primary care: a systematic literature review

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ABSTRACT

Background:

Leaders are needed to address healthcare changes essential for implementation of integrated primary care. What kind of leadership this needs, which professionals should fulfil this role and how these leaders can be supported remains unclear.

Objectives:

To review the literature on effectiveness of programmes to support leadership, the relationship between clinical leadership and integrated primary care, and important leadership skills for integrated primary care practice.

Methods:

We systematically searched PubMed, CINAHL, Embase, PsycINFO until June 2018 for empirical studies situated in an integrated primary care setting, regarding clinical leadership, leadership skills, support programmes and integrated-care models. Two researchers independently selected relevant studies and critically appraised studies on methodological quality, summarized data and mapped qualitative data on leadership skills.

Results:

Of the 3207 articles identified, 56 were selected based on abstract and title, from which 20 met the inclusion criteria. Selected papers were of mediocre quality. Two non-controlled studies suggested that leadership support programmes helped prepare and guide leaders and positively contributed to implementation of integrated primary care. There was little support that leaders positively influence implementation of integrated care. Leaders' relational and organizational skills as well as process-management and change-management skills were considered important to improve care integration. Physicians seemed to be the most adequate leaders.

Conclusion:

Good quality research on clinical leadership in integrated primary care is scarce. More profound knowledge is needed about leadership skills, required for integrated-care implementation, and leadership support aimed at developing these skills.

Key message

- Research to build a stronger evidence base for leadership and supportive leadership interventions is urgently needed to warrant the current emphasis on leadership in integrated primary care.
- Evidence on essential leadership skills adds that physicians require relational and organizational skills, as well as process-management and change-management skills.

INTRODUCTION

As numbers of chronically ill patients with complex healthcare needs are increasing, primary care professionals will be challenged to deliver integrated care. Integrated care is about 'delivering seamless care for patients with complex long-term problems cutting across multiple services, providers and settings' ([1], p. 58). It covers care processes that take place on the micro (clinical integration), meso- (professional- and organizational integration) and macro (system integration) level (Figure 1) [2], and requires interprofessional care including teamwork, collaboration, coordination and networking [3]. Consequently, implementation of integrated care is a complex and sometimes even chaotic process, requiring fundamental redesign of usual primary care [4,5].

Leadership is considered a prerequisite for integrated primary care [6-9] to give direction, and align within organizations and interprofessional teams [10,11]. Worldwide, physician leadership is endorsed to foster collaboration with colleagues interprofessionally [9,12]. Therefore, physician leadership should exceed leading multidisciplinary meetings. It is also about the ability to change the care process, e.g. defining new roles for different professionals, handling different interests and implementing patient care coordination.

A review of studies in the hospital setting recently showed that nursing leadership may lead to higher patient satisfaction, lower patient mortality, fewer medication errors and fewer hospital-acquired infections [13]. Within the Chronic Care Model, the most accepted integrated-care model, leadership is recommended to enlarge effectiveness of integrated care [14]. However, lack of leadership power is often reported in integrated-care studies [7,8] and few studies support the assertion that leadership advances integrated care [15].

Because of the diversity in autonomous professionals and the differences in care arrangements, experiences and views of professionals in primary care [16], it is plausible that leadership aimed at primary care integration requires specific leadership styles and skills (See Box 1 and Figure 1 for leadership styles and tasks) [17].

BOX 1. Leadership styles related to integrated care

Two important leadership styles can be distinguished in relation to integrated care:

- collective leadership (e.g. shared, collaborative, dispersed, distributed or team leadership) that involves the collective influence of team members and is based on social interactions [18].
- transformational leadership, a more hierarchical style, where leaders transform their followers by charisma and motivate them to achieve more than what is expected and challenge them to look beyond self-interest [19].

A recent scoping review identified collective leadership as most important style to facilitate inter-professional care, although it remained unclear how this style was applied. Only few studies described leadership skills needed for collaboration with colleagues with different professional or organizational backgrounds [20].

Several preparation and support programmes exist to develop leadership skills among healthcare professionals [20]. Most of these programmes target physicians and nurses (clinical leadership) in hospital settings [15], and only few address care integration [21]. Despite the broadly shared idea that leadership is essential for the delivery of integrated care, the nature and strength of the association between leadership and integrated primary-care practice remains unclear [20]. In a review of the literature, we therefore, aimed to primarily study the effectiveness of leadership preparation and support programmes on integrated primary care practice. Furthermore, we explored the association between clinical leadership and integrated primary care practice and outcomes and skills required for effective clinical leadership in an integrated primary care context.

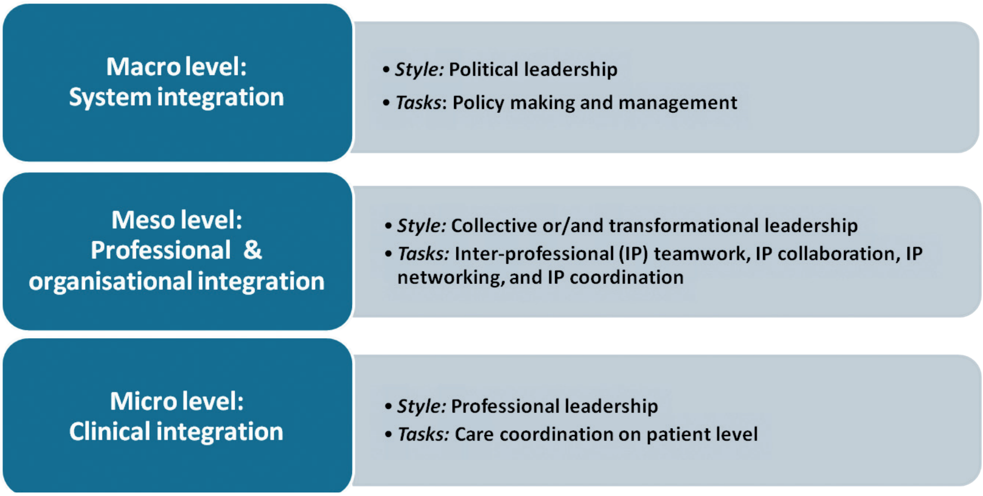

Figure 1: The three different levels of care integration and their leadership styles and tasks.

METHODS

Search strategy

We performed a systematic review according to the PRISMA recommendations [22] (Prospero CRD42016036746). We searched the electronic databases of PubMed, CINAHL, Embase, PsycINFO up to 30 June 2018, including relevant synonyms for (1) Leadership AND (2) Integrated Care, namely

‘Chronic Care Model’, ‘coordinated healthcare’, ‘integrated health service’, ‘collaborative healthcare’, ‘interprofessional collaboration’, ‘interprofessional cooperation’, ‘inter organizational collaboration’ and ‘inter organizational cooperation’, without restrictions regarding language or year of publication. Additionally, we performed the snowball method and manually searched systematic reviews on implementation of integrated care (Supplemental Material, available online).

Inclusion criteria

For inclusion, articles had to (1) describe empirical research with quantitative and/or qualitative data collection, full text available; (2) address clinical leadership in an integrated primary care setting or collaboration between primary and hospital care; (3) focus on the effectiveness of leadership support and training, on required leadership skills and/or the association between leadership and integrated primary care practice; and (4) focus on the meso-level of integrated care (Figure 1).

Excluded were reviews, opinion papers, papers on health policy, papers solely situated within the hospital setting, and papers that report on clinical interventions with the focus on process indicators. We excluded studies on integrated care defined as public health programmes, oral health, telehealth, disease management, care pathways, educational programmes, and studies with the following perspectives: non-clinical leadership (management, governance, political, church, military, civic and lay leaders) and care integration not exceeding the micro level (care coordination).

Selection of papers, critical appraisal and data extraction

After exclusion of duplicates, a first selection was made based on article titles by one reviewer (MN); then, abstracts were independently screened by two researchers (MP, MN). The relevant articles were read full-text and assessed for inclusion. In case of disagreement, discussion led to consensus or a third researcher was consulted (MvdM). To determine the level of agreement, Cohen’s κ was calculated.

Subsequently, the studies included were appraised independently on methodological quality by two researchers (MP, MN). We used the Mixed Methods Appraisal Tool (MMAT) as this tool allows concomitant appraisal of qualitative, quantitative and mixed methods studies [23]. MMAT scores represent the number of criteria met, divided by four and translated in percentages; scoring varies from 25% (noted as *, low quality) to 100% (noted as ****, high quality), with scores in between noted as ** or *** of mediocre quality. Additionally, all qualitative studies were assessed using the COREQ criteria and these scores were integrated in MMAT scores [24].

Primarily, data extraction was targeted on the effectiveness of leadership support and training programmes as a structural component of the integrated primary care implementation strategy on all possible outcomes e.g. individual or organizational. Secondarily, data were collected on the association between clinical leadership and integrated primary care with outcomes on the patient level and on leadership skills needed for effective implementation of integrated primary care. We extracted additional data on study characteristics such as publication date, country, integrated-care setting, target patient population, design, data collection and participants and leadership perspective/approach.

We performed a narrative synthesis on results for leadership skills by categorizing outcomes using the Bell framework on collaboration [25]. This framework consists of five different themes: (1) shared ambition; (2) mutual gains; (3) relationship dynamics; (4) organization dynamics; and (5) process management [17]. After categorizing the data in these themes, we defined subthemes.

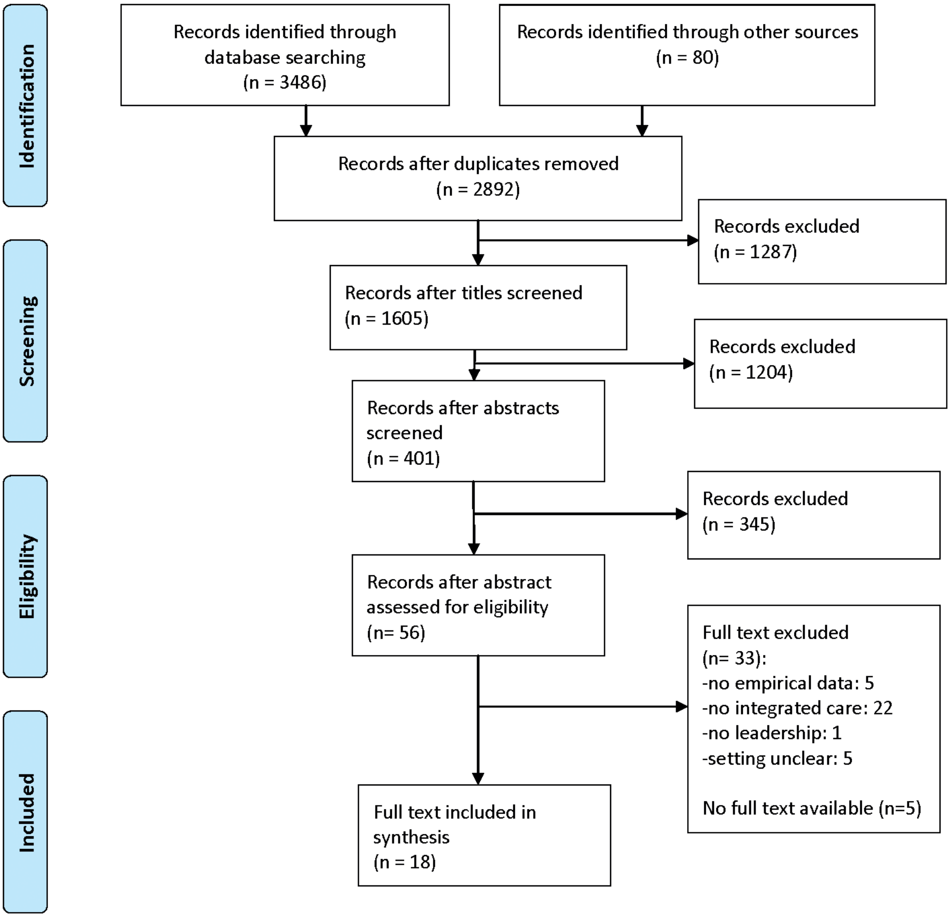

Figure 2: Diagram of information flow through phases of systematic review

RESULTS

Study characteristics

From the 3207 citations identified, 61 abstracts were found eligible of which 56 full-text articles were available (Figure 2). The researchers initially agreed on 48 articles for inclusion or exclusion ($\kappa = 0.86$), on seven articles consensus was reached after discussion and for one article a third researcher was consulted. Finally, 20 articles were included (Table 1).

Studies included were conducted in Western countries, most in the USA (n = 7) and Canada (n = 4). The majority of studies used a qualitative design (n = 12) or a mixed methods design (n = 7). Two studies obtained the maximum MMAT scores (****); 16 studies were of mediocre and two of low quality. Studies were all conducted after 2006. In 12 studies, integrated care was targeted on specific chronic care diseases, e.g. depression and diabetes or the elderly population. Integrated-care interventions ranged from collaborative working [28] and interprofessional collaboration [33,36,38,44,45] to full Chronic Care Model implementation, including case management, and multidisciplinary teams and consortium building [31,32,34].

Ten studies explicitly mentioned the use of clinical leadership perspective [26-28,31,32,39,42-45]. Five studies focused on collective leadership [30,35,36,38,41]. Three articles mentioned that different leadership styles were needed in different phases of integrated-care implementation [27,32,39]. Five papers did not describe the leadership style addressed [29,30,33,38,41].

Effectiveness of leadership interventions to improve integrated-care practice

We found no clinical trials on effectiveness of leadership interventions (support and preparation). Two studies, one mixed method study of mediocre quality [37] and one qualitative design of low quality [28], reported on the impact of a leadership intervention on integrated primary care practice. Bitton et al. investigated a leadership academy's curriculum, including skill development and peer mentoring, that supported clinical leadership and change-management [37]. Nineteen primary care practice teams, which consisted of clinical physician leaders, followed the leaderships academy's curriculum during an 18-month period. The evaluation showed that clinical leadership behavior improved (from 6.2 to 7.9, $P < 0.001$, on the validated self-report patient centered medical home assessment, subscale 'engaged clinical leadership'; scores range from 0 (worst) to 12 (best)). Additional qualitative research findings suggested that leadership competencies must be augmented and learned at practice level to succeed in changing towards collaborative practice.

Alleyne et al. evaluated the clinical nursing leadership and action process model (CLINLAP), an approach to support firmly clinical (nursing) leadership [28]. This course included a two-day management-development workshop, group clinical supervision (90 minutes, weekly). Participants were additionally supported by a management development tool. In a qualitative evaluation, six district nurses stated that the CLINLAP model improved their capacity to enhance the quality of collaborative services provided to their patients, increased their confidence to perform and made implementing change more practical and manageable.

Association between clinical leadership and integrated primary-care practice and outcomes

Thirteen studies explored the association between leadership and integrated primary care (Table 2). Three studies used a quantitative, cross-sectional correlation design (MMAT **/***), and 10 studies used a qualitative design (MMAT * to ****). All these studies reported a positive influence of leadership on the integration of primary care and provided in-depth information on the most fruitful leadership approaches: clinical leadership [27,31] and different types of collective leadership: team leadership [30,38,41] and dispersed leadership [35]. Two studies revealed the value of continuity of leadership in person for implementation of integrated primary care [26,42]. Five studies reported explicitly that physician leaders were the most suited professionals for practicing the clinical leadership role [33,38, 43-45] One study found a strong relationship ($\beta = 0.25$) between effectiveness of leadership and chronic care model integrated partnership [34]. Two studies showed a significant correlation between strong leadership and patient outcome measures, such as patients' activation ($r = 0.6$) and the proportion of patients having nephropathy screening ($OR = 1.37$)[36,39].

Table 1. Overall characteristics of the papers included in order reference by year of publication

Reference, Year, Study quality	Country	Integrated-care setting (when specified target patient population)	Study design	Data collection	Participants
[26] 2006***	USA	Within primary care (depression care)	Qualitative	Telephone interview	5 community-based healthcare organizations/29 participating practices, 91 participants
[27]2006*	Canada	Between primary care and hospital (oncology care).	Qualitative	Longitudinal case study; non-participating observation of meetings, semi-structured interviews, documentary analysis	Local, regional and supra-regional multidisciplinary teams; 5 hospitals, 65 clinician leaders, medical and nursing staff members and managers
[28] 2007*	UK	Within primary care	Mixed methods, largely qualitative	Questionnaires, open-ended interviews, one-to-one consultations, discussion, individual case-study report, individual feedback and group presentations	6 district nurses/district nurse team leaders
[29] 2008**	Canada	Within primary care (palliative care)	Qualitative	Focus groups	8 primary-care teams
[30] 2009**	Australia	Between primary care, hospital and residential (aged) care	Mixed methods, largely qualitative	Multi-method case-study: journals, interviews, focus groups and surveys	3 (student) nurse practitioners
[31] 2010***	Canada	Between primary care (addiction rehabilitation) and hospital (psychiatric)	Qualitative	Case study: interviews, focus groups, non-participant observation and document analysis	2 cases: 25 clinicians and administrators
[32] 2010**	France	Between primary care and hospital (community-dwelling elderly people with complex needs)	Qualitative	Interviews, observation, documents and focus groups	56 stakeholders: primary care, community-based services, hospitals and funding agencies
[33] 2010***	Canada	Within primary care	Qualitative	Exploratory case study and semi-structured interviews	14 family health teams

Table 1. continued

Reference, Year, Study quality	**Country**	**Integrated-care setting (when specified target patient population)**	**Study design**	**Data collection**	**Participants**
[34] 2012**	The Netherlands	Within primary care and between primary care and hospital (COPD, diabetes cardiovascular, psychiatric diseases)	Quantitative, cross-sectional design	Questionnaires: – Partnership synergy and functioning (PSAT) – Imp activeness disease-management partnership (ACIC)	22 disease-management partnerships 218 professionals
[35] 2012**	UK	Within primary care (depression care)	Qualitative	Case study, in-depth interviews, documentary material	20 managers and practitioners
[36] 2013***	USA	Within primary care (diabetes, asthma)	Mixed methods	Qualitative: focus groups, clinical measures on diabetes and asthma and monthly practice implementation Quantitative: leadership and practice engagement scores rated by external practice coach	Practice clinicians and managers of 76 practices; subsample of 12 practices for the focus group
[37] 2014**	USA	Between primary care and hospital	Mixed method, largely qualitative	Internal evaluation: Monthly performance data on three levels: beginner, middle and expert level on practice operation, clinical process and outcomes, and patient experience External evaluation: to determine how well the collaboration achieves aims	9 collaborative practices involved, 260000 patients, 450 professionals
[38] 2014**	USA	Within primary care	Mixed methods	Qualitative: interviews Quantitative: web-based survey	22 practitioners from 5 pilots 400 practitioners pilot and non-pilot

Table 1. continued

Reference, Year, Study quality	Country	Integrated-care setting (when specified target patient population)	Study design	Data collection	Participants
[39] 2014***	USA	Within primary care (depression care)	Mixed methods	Qualitative: site visits, observation, interviews, structured narratives Quantitative: PHQ-9 scores, activation rates and remission rates of 1192 patients	42 practices from 14 medical groups
[40] 2015**	Australia	Within primary care (Aboriginals)	Qualitative	In-depth interview	5 senior leaders
[41] 2015****	Ireland	Within primary care	Qualitative	Semi-structured interview	2 primary-care teams, 19 team members
[42] 2015**	USA	Within primary care (depression care)	Mixed methods	Qualitative: observation of quality improvement team monthly meetings Quantitative: chart reviews	1 community health center 5044 adult patients
[43] 2015****	USA	Between primary care and hospital	Qualitative	Observation during site visits and interviews	9 sites, 80 participants from 12 professions
[44] 2017**	Japan	Within community and primary care (elderly)	Qualitative	Semi-structured interview and observation	26 medical professionals, including physicians, nurses, public health nurses, medical social workers and clerical personnel
[45] 2018***	The Netherlands	Within primary care (elderly)	Qualitative	Focus groups and observation	46 health care and social service professionals from 4 General Practitioners practices

*= low quality, 25 % on MMAT criteria.

**= mediocre quality, 50 % on MMAT criteria.

***= mediocre quality, 75 % on MMAT criteria.

****= high quality, 100% on MMAT criteria.

MMAT = Mixed Methods Appraisal Tool, ACIC = Assessment of Chronic Illness Care; COPD =Chronic Obstructive Pulmonary Disease; PHQ-9=Patient Health Questionnaire-9; PSAT = Partnership Self-Assessment Tool.

Table 2. Association between clinical leadership and integrated primary care and outcomes

Reference	Study design	Leadership perspective	Integrated-care outcomes: Clinical measures or practice changes towards care integration: teamwork, IPP, collaborative care
[26]	Qualitative	Clinical leadership	Leadership and durability of leadership was clearly associated with success in sustaining and spreading the intervention
[27]	Qualitative	Clinical leadership Change leadership	Clinical leaders succeeded in influencing professional practices. However, it is obvious that change does not depend solely on the clinical leaders' role
[30]	Mixed methods, largely qualitative	Clinical leadership	Collaboration and leadership attributes were interrelated and contributed to the impactiveness of the emerging NP role. Leadership supported the work of the team
[31]	Qualitative	Clinical leadership	*Clinical leadership* had determinative positive influence on integration process
[33]	Qualitative	Clinical leader Change leadership	Critical role of *physician leadership* in supporting collaborative care Essential role of a manager in supporting an sustaining collaborative care
[34]	Quantitative, Cross-sectional	Overall leadership / senior leaders Practice team leadership	Strong relationship (β = 0.25; $P \leq 0.01$) between impactiveness of disease management partnership (ACIC scores) and leadership (11 items on PSAT)
[35]	Qualitative	Leadership with focus on learning and knowledge management	*Dispersed leadership* approaches are the most appropriate for collaborative depression care
[36]	Mixed methods	Clinical leadership by practice leaders	Leadership was significantly associated with 1 clinical measure: the proportion of patients having nephropathy screening (odds ratio = 1.37; 95% CI, 1.08-1.74) The odds of making practice changes were greater for practices with higher leadership scores at any given time (odds ratio = 2.41–4.20). Leadership rated monthly on a 0–3 scale, during 1 year
[38]	Mixed methods	Clinical leadership	*Local physician leader* facilitated sense of teamwork
[39]	Mixed methods	Top leadership Primary-care practice champion Care manager	Statistically significant and moderately strong positive correlations for patient activation and strong leadership support (0.63)/ strong care manager (0.62)/ strong Primary-care practice champion (0.60)
[41]	Qualitative	Clinical leadership	Lack of leadership was considered to be a barrier to more efficient outcomes Formal leadership may not be fundamental to team working; *team leadership* would be advantageous
[42]	Mixed methods	Clinic QI leadership	Having onsite programme champions and durability of this leadership was important for implementation of collaborative care
[43]	Qualitative	Clinical leadership	IPP best practices emphasized role of *physician leadership*. Within historic hierarchy of medical care, physicians often are tone setting

ACIC = Assessment of Chronic Illness Care; OR, ods ratio; CI = confidence interval; IPP = interprofessional practice; NP = nurse practitioner; PSAT = partnership self-assessment tool.

Leadership skills required for integrated primary care

Fourteen qualitative studies, one of high [43] and 13 of mediocre quality [26,29-33,35,36,38,40,42,44,45], described skills needed for integrated-care implementation and practice. Eleven studies reported skills related to relational dynamics such as encouraging team culture, facilitating interpersonal communication, fostering accountability and responsibilities of team members, positive role modelling and developing new professional roles [29,30,32,33,35,36,38,42-45]. Seven studies provided insight into organizational skills needed for clinical leaders: being visionary, decisive, being a catalyst and problem solving [26,30,31,36,40,43,45]. Process-management skills and change-management skills were reported in seven articles [26,29,31-33,36,45]. Two studies stated the need for leaders' qualities to ensure the commitment of multidisciplinary team members to a shared purpose [32,35]. No skills required for Bell's 'mutual gains' (understanding the various interests of the involved partners) category were mentioned (Table 3).

Table 3. Leadership skills required for integrated primary care

Subthemes	Reference	Method for data collection	Leadership skills required
Shared ambition (shared commitment of the involved partners)			
Commitment	[32]	Interviews, observation, focus groups	Ensuring the broadening commitment of different health and social services
	[35]	In-depth interviews	Helping to develop and negotiate shared purpose
Relationship dynamics (relational capital among the partners)			
Team culture	[29]	Focus groups	Shared leadership: team members empowering each other in their team
	30]	Case-study journals, interviews, focus group and surveys	Being able to function in a networked rather than a hierarchical manner
	[32]	Interviews, observation, focus groups	Maintain trusting relationships Establishing a collaborative culture: sensitivity to roles and contributions of different staff members
	[35]	In-depth interviews	Encouraging working in groups and teams
	[36]	Focus groups	Fostering culture of teamwork Sensitivity to issues learning to ‘work together’
	[43]	Observation during site visits, interviews	Valuing contribution of team member Creating safe space for team members
	[44]	Semi-structured interviews	Being able to consider the circumstances and ways of thinking of each discipline
Inter-personal communication	[29]	Focus groups	Conflict resolution Facilitate meetings
	[43]	Observation during site visits, interviews	Communicating expectations of team member overtly or implicitly
	[44]	Semi-structured interviews	Promoting the creation of good communication and close interaction between disciplines
Responsibilities	[29]	Focus groups	Foster accountability Divide responsibilities for different tasks to different team members
	[32]	Interviews, observation, focus groups	Clarifying dysfunctional areas and revising task distributions
	[42]	Observation of team monthly meetings	To champion protocol adherence
Role modelling	[30]	Case-study journals, interviews, focus group and surveys	Positive professional role modelling, to share expertise Developing trans boundary role
	[33]	Semi-structured interviews	Positive physician role modelling
	[45]	Focus groups, observation	Taking initiative to build multidisciplinary teams Emphasizing the role of professionals close to patients, especially nurses and social workers

Table 3. continued

Subthemes	Reference	Method for data collection	Leadership skills required
Role developing	[32]	Interviews, observation, focus groups	Refining and legitimating the role of the case manager
	[38]	Interviews, web-based survey	Providing confidence among individuals in adopting new roles Clarifying the scope of new role and responsibilities Providing a vehicle for incorporating new roles into routine practice
Organization dynamics (governance arrangements among the partners)			
Visionary	[26]	Telephone interviews	Visionary and committed
	[36]	Focus groups	Vision about the importance of the work
	[43]	Observation during site visits, interviews	Vision on IPP, including patient- and family-centered care, high-quality care
	[45]	Focus groups, observation	Passionate about delivering integrated, good quality, person-centered care
Decisiveness	[30]	Case-study journals, interviews, focus group and surveys	Evolving sense of authority
	[31]	Interviews, focus groups, non-participant observation and document analysis	Having determinative influence Having clearly decisiveness to implement practice changes Taking personal initiatives to set events in motion aimed at integrating healthcare resources
	[40]	In-depth interviews	Display of determination to persevere when faced with challenges an barriers to change Persistence in facing resistance to change from staff
	[45]	Focus groups and observation	Deciding on the composition of the multidisciplinary team
Catalyst Problem solving	[36]	Focus groups	Serve as link between top management and staff
	[30]	Case-study journals, interviews, focus group and surveys	Taking positive action to resolve problems
	[40]	In-depth interviews	Overcome bureaucratic hurdles
Process management (process steering among the partners)			
Change management	[26]	Telephone interviews	Supporting improvement change culture, that permeates the organization
	[29]	Focus groups	Should have knowledge of change theory
	[32]	Interviews, observation, focus groups	Transforming the classic hierarchical relationship between GPs and nurses/case managers
	[33]	Semi-structured interviews	Should encourage change Should be innovative, creative and possess project development and management skills
	[36]	Focus groups	Test and implement innovations

Table 3. continued

Subthemes	Reference	Method for data collection	Leadership skills required
Project management	[29]	Focus groups	Public speaking, presentation skills, coaching skills, writing proposals and abstracts
	[31]	Interviews, focus groups, non-participant observation and document analysis	To empower individuals to participate in transformation activities
	[32]	Interviews, observation, focus groups	Tailoring to the various phases of the diagnostic, design and implementation process
	[36]	Focus groups	Taking personal initiative to set events in motion aimed at integrating healthcare resources
	[45]	Focus groups, observation	Networking at the strategic level: connecting primary and secondary care, social services, and the community

GP = general practitioner; IPP = Inter Professional Practice; QI = Quality Improvement

Bells Framework consists of [1] Shared ambition, [2] Mutual gains, [3] Relationship dynamics, [4] Organization dynamics and [5] Process management.

Mutual gains was not mentioned.

DISCUSSION

Main findings

In this systematic review we found no controlled studies on effectiveness of clinical leadership on integrated primary care practice and outcomes on patient level. Two articles suggested that leadership support programmes may contribute to prepare leaders for the implementation of integrated primary care. Leaders' relational and organizational skills as well as process-management and change-management skills were considered important to improve care integration but were never tested. Physicians were appointed as the most adequate leaders. The majority of the empirical studies included in the review were explorative by nature and of mediocre quality. The focus on leadership as a research target in relation to integrated care seems to be a new phenomenon as all studies selected were conducted after 2006.

Strengths and limitations

The main strength of this first systematic review covering the association between leadership and integrated primary care is that we performed a sensitive search with few limitations. However, we may still have missed potentially relevant articles because the underlying concepts of integrated care as well as leadership are not yet clearly defined. This also might have given rise to multiple interpretation during the selection process. To overcome this problem, the screening process was carried out by two researchers with at least ten years of experience in the field of integrated primary care. Moreover, they independently screened 420 abstracts and 56 full-text articles, with a high agreement rate.

Another limitation is that our search was limited to databases of clinical research when studying a management topic. Since this review focused on clinical leadership, we argue that we probably were able to identify most relevant papers in the databases used. We tried to diminish this factor further by using snowball methods and manual searching of key articles on the implementation of integrated care including studies published in organizational science journals.

Comparison with existing literature

Effectiveness of leadership interventions. This review revealed that the use of leadership as the implementation strategy, although recommended in the Chronic Care Model and by many experts in the field, was hardly applied or described since we only found two studies of low and mediocre quality that evaluated leadership-training interventions aimed at structurally supporting implementation processes of integrated care. This shows that the importance of leadership to integrated primary care does not yet transcend the level of opinions.

Association between clinical leadership and integrated primary care. The association between leadership and integrated care is not substantiated with firm evidence [20]. This review appoints physicians as the professionals most capable of transforming care towards more integration. Until now, physicians have indeed been the principal players in either opposing or supporting successful transformative efforts [46]. Recognition of the need for physicians' leadership role development and support and increased attention on clinicians' collaboration and leadership skills were recently stipulated in physicians competency profiles (i.e. CANMED roles) [12,47]. Other professionals, e.g. nurses and social workers, may lack the hierarchical position in comparison with physicians and possibly need more support to perform their leadership role; skills to perform this role are not automatically present in professionals and the importance of supporting professionals in their leadership's role is still underestimated [20].

Required leadership skills. Our review indicates that some relational leadership styles, especially collective leadership and team leadership, may be fruitful to the implementation of integrated primary care. Relational and organizational skills, as well as process-management and change-management skills, such as communicating expectations, maintaining trusting relationships and creating safe space, were also found important in other reviews [8,20]. Remarkably, the need for leaders to be able to understand mutual gains was not mentioned in the papers included. A possible explanation is that the ability to oversee the consequences of care integration for the organizations involved is complicated, as competitive dynamics may hinder crossing organizational borders [48].

Implications for research and/or practice

This review underlines the need for innovation in leadership research, training and practice. Furthermore, it shows that evaluating leadership in integrated primary care is challenging. Future research could benefit from better defined concepts and a clear research agenda on leadership in the context of integrated primary care [20]. Leadership skills identified in this review can fuel the development of leadership programmes in vocational training curricula and interprofessional education. Evaluation of complex educational leadership interventions and the complex integrated primary care setting may ask for innovative research designs instead of classical randomized controlled trials. An example of such an innovative design is the longitudinal mixed methods case study to evaluate DementiaNet, an implementation programme for networked primary dementia care [49]. This design enabled a better understanding of the effects and working mechanisms. Outcomes in this study were network maturity and quality of care. These outcomes and their interrelatedness, combined with leadership skills assessment, are also relevant for the evaluation of clinical leadership programmes in the integrated primary care setting.

CONCLUSION

In the field of primary care, experts consider leadership to be a relevant factor for good-quality integrated care. However, this review revealed that there is no firm evidence for its positive impact. The evidence available is limited to mainly qualitative studies. Leadership support aimed at developing skills for integrated-care implementation is probably effective but a more profound evidence base is required. We therefore, advocate the development of higher-quality knowledge about leadership focused on the implementation of integrated-care practice.

DISCLOSURE STATEMENT

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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SUPPLEMENTARY MATERIAL

Search strategy Pubmed (final) Search on November 1st 2015; Alert until June 30th 2018

Introduction:

The research questions of this systematic review: to explore: (1) effectiveness of programmes to support leadership for integrated primary care (2) the relationship between leadership and integrated primary care and (3) important leadership skills for integrated primary care.

Search words:

LEADERSHIP
"leadership"[Mesh] OR
leader*[tiab] OR
champion[tiab] OR
champions[tiab] OR
coordinator[tiab] OR
clinical governance[tiab] OR
entrepreneurship[tiab] OR
seniority[tiab]

AND

CHRONIC CARE MODEL
"Chronic Disease"[Mesh] AND ("Managed Care Programs"[Mesh] OR "Delivery of Health Care"[Mesh]) OR
chronic care model*[tiab] OR
ccm[tiab] OR
ccms[tiab]

LEADERSHIP

AND

INTEGRATED CARE

Delivery of Health Care, Integrated"[Mesh] OR
Integrated care[tiab] OR
Integrating care[tiab] OR
Integrated healthcare[tiab] OR

Integrating healthcare[tiab] OR
Integration of care[tiab] OR
coordinated care[tiab] OR
coordinating care[tiab] OR
coordinated healthcare[tiab] OR
coordinating healthcare[tiab] OR
coordination of care[tiab] OR
coordination of healthcare[tiab] OR
Integrated health service*[tiab] OR
Integrating health service*[tiab] OR
Integrated healthservice*[tiab] OR
Integrating healthservice*[tiab] OR
Integration of health services[tiab] OR
Integration of healthservices[tiab]) OR
Collaborative Care[tiab] OR
Collaborative Health care[tiab] OR
Collaborative Healthcare[tiab] OR
Collaborative Service*[tiab] OR
Collaborative Healthservice*[tiab] OR
Collaborative Health service[tiab] OR
Interprofessional collaboration[tiab] OR
Interprofessional cooperation[tiab] OR
Interprofessional work[tiab] OR
Inter-professional collaboration[tiab] OR
Inter-professional cooperation[tiab] OR
Inter-professional work[tiab] OR
Interorganisational collaboration[tiab] OR
Interorganisational cooperation[tiab] OR
Inter-organisational collaboration[tiab] OR
Inter-organisational cooperation[tiab] OR
Interorganizational collaboration[tiab] OR
Interorganizational cooperation[tiab] OR
Inter-organizational collaboration[tiab] OR
Inter-organizational cooperation[tiab] OR
Care coordination[tiab])

Explanatory memorandum:

The starting point of our search was the question: what helps health care professionals involved with integrated care in their leading role. We soon discovered however that only few studies were executed that could help us answer this question directly. Therefore we decided to add the two secondary questions and we searched for studies on the association between leadership and integrated primary care with outcomes on the patient level as well as leadership skills needed for effective implementation of integrated primary care.

5.

Clinical leadership training in primary care networks: an explorative mixed methods evaluation

Submitted as:

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Clinical leadership training in primary care networks: an explorative mixed methods evaluation.

ABSTRACT

Introduction:

Clinical leadership is recommended for successful implementation of integrated care and development of primary care networks. Nonetheless, it is unclear how clinical leadership within these networks can best be developed. This study's goal is to evaluate the DementiaNet leadership programme's attribution to perceived leadership behavior and to explore primary care professionals' experiences and the programme's successful elements.

Methods:

An explorative, longitudinal mixed methods design was used in dementia primary care networks in the Netherlands (DementiaNet). Clinical network leaders followed a practice-based educational programme including 360-degree feedback, individual coaching and group training. Quantitative data included measurement of perceived leadership behavior with the Leadership Practice Inventory at enrolment, after 1 and after 2 years and were analyzed with paired sample T-tests and ANOVA repeated measurements. Qualitative data comprised reports of all coaching sessions, a focus group and interviews with network leaders and participants.

Results:

Twenty-six primary care professionals followed the programme. Leadership behavior according to Leadership Practice Inventory measurements improved during the second year of training (mean 12.17, p=0.016). Network leaders identified 50 learning goals, mostly associated with personal leadership competences. Individual coaching sessions and group training sessions were perceived as fruitful support.

Discussion:

The DementiaNet practice-based leadership training, including individual coaching, group sessions and a practice learning environment is a promising programme: it was positively valued by the network leaders and leaders increased their perceived leadership competencies. We advocate further implementation and evaluation of similar multifaceted leadership support programmes in primary care networks to generate a firm evidence base.

LESSONS FOR PRACTICE

- Network leadership conducted by primary care professionals is a novelty.
- Leadership support is needed to enable professionals to develop leadership skills.
- We encourage inclusion of 360 degree assessment, individual coaching and group sessions in a leadership training aimed at leadership in primary care networks.
- Further implementation of such multifaceted leadership support programmes in primary care networks is advocated.
- Preparation for interprofessional collaboration for all primary care professionals should already be part of their vocational training.

INTRODUCTION

Leadership appears to be a major facilitating factor for the collaboration between professionals and the implementation of integrated care models [1]. This notion applies especially to the context of primary care, where professionals work in different organizations and teams, have different goals and often are not personally acquainted [2]. Local network arrangements and local network leadership could stimulate primary care integration [3]. Recognition of the need for professionals' leadership role development is increasing [4] and clinicians' collaboration and leadership skills are recently recognized as essential for medical and care professionals in the CANMED roles [5]. However, clinical leadership in the context of integrated primary care is in its infancy ([6].

In hospitals, clinical nurse-leadership showed to improve both the quality of care [7] and interprofessional collaboration [8]. In primary care, nurses are key participants in local networks [9] and often fulfil a central role in integrated care arrangements [10]. Thus they may be good candidates to take on leadership roles. Because primary care nurses are not accustomed to performing leadership roles in networks, development of their leadership skills is recommended [11]. Leadership training programmes should address relational and organizational skills as well as process-management and change-management skills [6].

Within the Dutch DementiaNet collaborative care approach (a network intervention aimed to improve integrated primary dementia care), facilitating network leadership is one of the core components [12]. Network leaders connect the different professionals, stimulate collaboration and support the quality improvement processes. To support the network leaders in their role, a two-year leadership training programme was designed.

The aim of this study is to obtain detailed insight into the way the DementiaNet leadership programme contributes to the perceived leadership behavior in primary care professionals, to explore participants' leadership experiences in a practice environment and to identify the programme's successful elements.

METHODS

Ethical Considerations

The study protocol of the DementiaNet study was reviewed by the local medical ethics committee, and formal judgment was not required (protocol number: 2015-2053). Participants provided written consent for all qualitative data to be used for research purposes.

Study Design and Population

This study has an explorative, mixed methods design, collecting longitudinal quantitative data supplemented with qualitative data [13]. Qualitative methods and results are reported according to the Consolidated Criteria for Reporting Qualitative Research (COREQ) [14].

Between June 2014 and October 2014, we invited community nurses, dementia case manager nurses and practice nurses via regional newsletters, national newsletters and the researchers' professional networks to form local networks. The first group of network leaders started the leadership programme between January and September 2015. Other network leaders joined a year or more later once they heard about the programme via colleagues, the DementiaNet newsletters, websites and/or training activities. We included nursing professionals as well as other primary care professionals. Professionals were excluded when they were not able to compile a local network to join the DementiaNet programme.

DementiaNet Leadership Intervention

The two-year support leadership programme was based on the NHS Healthcare Leadership Model (www.leadershipacademy.nhs.uk) and several clinical leadership programmes [15-17]. The leadership programme was embedded within the DementiaNet approach, thus creating opportunities for actively practicing leadership skills and implementing tools and principles in the local network (Box 1). The programme consisted of the following elements: First, participants and their colleagues were asked to complete a multi-source (360 degree) feedback questionnaire, which is the Dutch version of the Clinical Leadership Competency Framework's self-assessment tool. Based on the results of this feedback, trainees were asked to articulate learning goals in order to ensure appropriate focus during the leadership programme. Second, trainees received individual coaching that was facilitated by two coaches (MP and MN). Both coaches received training in interprofessional education [18] at the academic postdoctoral training institute at Radboud Health Academy, NL. Every coach-trainee meeting followed a structured agenda: a discussion of a) the trainee's progress towards achieving learning goals, b) how new skills could be practiced within the network, c) network issues, such as collaboration problems, and d) advancement on Plan-Do-Check-Act cycles. We planned four coaching meetings on average per trainee; the frequency of the meetings depended on the needs of the trainees. Third, the trainees attended three different three-hour group sessions, which were scheduled 3 months apart and led by a qualified, experienced trainer (JdB). During these sessions, trainees were invited to exchange experiences and practice interactively with training actors different transformational types of leadership, such as situational leadership [19], connective leadership [20] and personal leadership [21].

BOX 1: Key elements of DementiaNet

1. Facilitating interprofessional collaboration between primary care professionals that are responsible for a shared case-load of people with dementia: from ad hoc towards structured collaboration
2. Facilitating leadership: at least one network participant was recruited to lead the interprofessional local network. This network leader had to connect the different professionals, stimulate collaboration and support the quality improvement processes.
3. Plan-Do-Check-Act cycles based on quality feedback
4. Interprofessional education within the network about self-selected topics

Data Collection and Data Sources

We structured the data collection according to Kirkpatrick's framework [22]. This framework categorizes the outcomes of educational interventions based on five different levels of effectiveness: 1) participation or completion, 2) participants' reaction or satisfaction, 3) learning and knowledge, 4) health professionals' behavior, performance or practice and 5) healthcare outcomes. Table 1 displays an overview of the data collection per level. Below, we describe the various sources of data collection.

Information about participation and reasons of absence was retrieved from training registration forms and the reports on the coaching sessions. Total participation was defined as attending a minimum of two meetings with a coach and a minimum of two group training sessions. Partial participation was defined as attending at least one meeting with a coach and at least one group session. Everything else was defined as no participation.

Semi-structured interviews were facilitated by a trained research assistant (IM) and held with the leadership trainees individually or in pairs depending on whether network leaders shared their leadership role. The interview questions covered the leadership trainees' experiences with the programme, the competence of the trainers and coaching staff and the learning process (including the learning goals).
A focus group interview with leadership trainees led by an independent facilitator (JdB) was held. The interview guide invited the participants to reflect on the results derived from both the quantitative and qualitative data. The guide also invited them to discuss the progress made towards meeting their learning goals, their knowledge of interprofessional and interorganizational collaboration, the leader's performance and ability to solve the network's quality issues and their awareness of leadership behavior as well as barriers and facilitators.

Semi-structured interviews were led by a trained research assistant (IM) and held with a purposive sample of participants from different networks that had been participating for at least one year. The interview topics included the network leader's performance and the added value of the leader for the network's achievements.

Reports were written of all telephone or face-to-face coaching conversations (individually or in duos, depending on whether network leaders shared their leadership role) and included the trainees' progress towards their personal learning goals. A member check was carried out by sending the reports to participants for comments on their interpretation and completeness.

Participants assessed their perceived leadership behavior with the Leadership Practices Inventory (LPI). LPI measures transformational leadership, which is defined as the behavior of leaders who move followers beyond immediate self-interests through influence (charisma), inspiration, intellectual stimulation or individualized consideration [23]. The Dutch version of the LPI was validated for evaluating nursing leadership programmes in the Netherlands. The LPI contains 30 items, each measured on a 10-point Likert scale (1 = almost never, 10 = almost always; total score range is 30-300). The five LPI subscales correspond with five dimensions of transformational leadership: 1) modelling the way (MW): a leader has personal credibility and acts consistently with their values and beliefs; 2) inspiring a shared vision (ISV): a leader has a clear picture of possible developments and enlists others in a shared vision; 3) challenging the process (CP): a leader looks for opportunities and innovations to improve and experiments, takes risks and learns from their mistakes; 4) enabling others to act (EOA): a leader fosters collaboration by supporting cooperative goals, building trust and strengthening others by sharing power; 5) encouraging the heart (EH): a leader recognizes individual contributions and builds a strong sense of collective identity and team spirit [24]. Each subscale consists of six items, and each subscale scores ranges from 6 to 60, with higher scores indicating better perceived leadership skills.
Baseline characteristics were collected among the leadership trainees via a short online questionnaire and included age, gender, profession, education, number of years of experience in primary care and prior experience in leadership roles.

Quantitative data were collected at enrolment in the leadership programme (T0), after one year (T1) and after the second year (T2). Self-perceived leadership behavior was assessed with a hard-copy questionnaire at T0 and an online questionnaire at T1 and T2. Semi-structured interviews with leadership trainees were held at T1 and T2. Semi-structured interviews with network participants were held at T1. The focus group interview was organized two months after T2. Reports of coaching meetings were written immediately after the session. All interviews were recorded and transcribed ad verbatim, and member checks were performed.

Table 1 Data collection and data sources per Kirkpatrick's levels of effectiveness

Kirkpatrick's level	Data collected per category	Data source
1. Participation	Registration of absence including reasons	Training registration forms
		Reports of coaching sessions
2. Reaction or satisfaction	Qualitative data: Experiences with the programme Competence of trainers and coaching staff	Semi-structured interviews with leadership trainees Focus group interview with leadership trainees
3. Learning and knowledge	Quantitative data: Learning goals and whether these goals were reached	Reports of coaching sessions
	Qualitative data: Progress towards meeting learning goals Knowledge of interprofessional and interorganizational collaboration	Focus group interview with leadership trainees
4. Professionals' behavior	Quantitative data: Self-assessed leadership behavior	Leadership Practice Inventory (LPI) Likert scale, range 30-300
	Qualitative data: Awareness of leadership behavior Barriers and facilitators Leader's performance	Focus group interview with leadership trainees Semi-structured interviews network participants
5. Healthcare outcomes	Qualitative data: Leader's ability to solve quality issues	Focus group interview with leadership trainees
	Leader's added value for the network's achievements.	Semi-structured interviews network participants

ANALYSIS

We collectively analyzed and reported quantitative and qualitative data per level of Kirkpatrick's framework [22] to explore patterns and trends. Descriptive statistics were used for the leadership trainees' characteristics and compliance to the programme. Transcripts of the interviews with leadership trainees and network participants were independently analyzed through open coding by two trained researchers (IM, AR). Consensus on the codes was reached through discussion. The results were summarized and illustrated by quotes taken from the different interviews.

The transcript of the focus group was analyzed through open coding by two trained researchers (DO, MN). Codes were clustered into categories and themes, and illustrative quotes were derived.

The reports of the coaching meetings were analyzed by a research assistant (LH) based on the number and content of learning goals. These goals were allotted to the LPI subscale-category they belonged and were rated whether they were achieved. The analysis was checked by another researcher (MN).
Mean LPI total scores and mean LPI sub-scores were analyzed. Development in LPI total scores were plotted and analyzed with Paired sample T-tests and ANOVA repeated measurements for differences between T0, T1 and T2. Differences in the mean scores were analyzed between two different groups: trainees that followed the programme totally and partially and trainees with and without prior leadership experience, with T0 scores as covariates using ANCOVA. Missing values were imputed with the mean of the subscale when no more than 3 scores were missing within one subscale.

The analyses were performed using SPSS, version 22.0 for Windows. ATLAS.ti version 8.2 was used to support all qualitative analyses.

RESULTS

Study characteristics

Twenty-six network leaders participated in the programme. Most leaders had a nursing background; the majority were community nurses (CN; n=10), practice nurses (PN; n=6) and dementia case manager nurses (CM; n=6). Two leaders were general practitioners (GP), and two were occupational therapists (OT). They worked in 16 different primary care networks of various sizes (median 9, min. 5 and max. 22 professionals) located in the eastern region of the Netherlands. Six of them had singular leaders, whereas ten networks were led by a duo. The network leaders were mostly women (n=25, 96%) and were mean 48.9 (SD 10.3) years of age. Their education levels encompass a Master of Science (n=2), a Bachelor of Science (n=16) and other degrees (n=4). The mean work experience in their present job was 9.2 (SD 6.1) years. Half of them had prior leadership experience, for example as team leader in a nursing home.

In total, 16 interviews were held with 21 network leaders (in pairs n=5, individually n=11), 10 interviews at T1 and 6 at T2. In the focus group interview nine leaders participated (CN, n=4; CM, n=2; PN, n=1; GP, n=1; OT, n=1). The interviews with network participants were held with eight professionals from eight different networks (CN, n=3; CM, n=1;PN, n=1; GP, n=1; OT, n=1; social worker, n=1).

Participation in the Training Programme

Eighteen leaders joined the programme for the full two-year period. Eight leaders followed the programme for one year at the moment of evaluation. Fifteen trainees followed all elements of the training, and eleven trainees joined only partially. Reasons for not fully joining the programme were: changing jobs, long-term illness and long distance to training location. All trainees finished their 360° self-assessment. The median number of meetings with a coach was 3 (SD 2.3). The number of meetings with a coach varied from 1 to 9 meetings. Sixteen trainees (61.5%) attended all three group sessions, and seven trainees attended only one group session (26.9%).

Participants' Reaction to or Satisfaction with the Training Programme

Individual interviews and the focus group interview revealed that most participants felt supported through receiving personal coaching and found that it contributed to meeting their learning goals. They mentioned that the sessions were moments of personal reflection. Furthermore, most network leaders explicitly mentioned the personal coaching as being valuable.

> I have never been supported so well, personally. It was a boost for my self-confidence (CN 1, network 11).

All leaders expressed that it helped them to clarify their role. Some leaders noticed that the coach helped them to become aware and appreciate the steps taken in their learning process, resulting in renewed enthusiasm. However, some participants articulated a difficulty to express learning targets or did not need personal support. Others valued the possibility to brainstorm specific solutions or discuss tangible examples from other networks together with the coach.

The group meetings were appreciated because of the creative format, open atmosphere, humorous approach and recognizable training situations. Participants identified the exercises geared towards changing behavior and communication as a successful element.

> I have learned what to do when a network participant has only little interest in joining the network. I try to keep in contact and to ask 'What do you need' instead of 'I want you to join'. I learned to treasure the small opportunities (CN 2, network 1).

Network leaders valued the group meetings to be able to exchange experiences and to get more grip on and understanding of the personal competencies related to being a network leader. They expressed that after the group sessions ended, they would have preferred the exchange of experiences with their peers to be continued.

Learning and Knowledge

From reports of 55 coaching conversations, we identified a total of 50 learning goals. Most goals (34%) were associated with the dimension 'Modelling the way'. These learning goals included: better articulation of own opinions and more satisfaction with own achievements. How to share responsibility with other network participants (dimension 'Enable others to act') was less frequently addressed (18%). Participants were often not successful in reaching the goals in this dimension (56%). Learning goals associated with team-building (dimension 'Encouraging the heart') were scarcely articulated (10%) (Table 2).

Results from the focus group interview partly supported the findings on learning goals. Network leaders recognized that they were confronted with personal leadership issues, but also reported that they learned to facilitate the network by applying a better network structure and jointly selecting and conducting improvement plans in dementia care within the network.

Table 2: Learning goals, categorized into Leadership Practices Inventory subscales

Subscale LPI	**Goals, number (%)**	**Attained, number (%)**	**Partially attained, number (%)**	**Not attained, number (%)**
Modelling the way (MW)	17 (34)	12 (70)	3 (18)	2 (12)
Inspiring a shared vision (ISV)	9 (18)	6 (67)	3 (33)	0
Challenging the process (CP)	10 (20)	5 (50)	4 (40)	1 (10)
Enabling others to act (EAO)	9 (18)	4 (44)	4 (44)	1 (12)
Encouraging the heart (EH)	5 (10)	2 (40)	3 (60)	0
Total	50 (100)	29 (58)	17 (34)	4 (8)

LPI= Leadership Practices Inventory

Trainees' Leadership Behavior

At both T1 and T2 measurements, a total of 4 values were missing, and means of subscales were imputed. The mean total leadership behavior score at T0 was 203.2 (SD 19.0) and varied from 151 to 246. Network leaders' performance scores on the five different dimensions of leadership behavior were at their highest at T0 on LPI subscale 'Enable others to act' (mean 44.5, SD 3.8) and at their lowest on 'Modelling the way' (mean 40.3, SD 4.9) (Table 3).

Perceived leadership behavior positively developed over the two-year period, with mean LPI total scores improving with a moderate effect size of mean 12.17 (n=18, *p* = .016, *d*=0.56). This improvement occurred during the second year of training. Plotted data revealed two patterns in the development of leadership over the two years: in one group of leaders, the perceived leadership behavior was gradually growing; in the other group, leaders first showed a decrease in their perceived leadership behavior at T1 compared to T0, and then slowly their perceived leadership behavior grew again.

There were no differences in leadership improvement between participants that followed the programme totally or partially. Participants who were experienced in leadership (n=13), perceived their own leadership behavior to be higher compared to non-experienced leaders (n=13) at T0 (mean difference= 16.2, *p* = .027; F= 5.587). At T2, the experienced leaders (n=8) again scored higher than the non-experienced leaders (n=10) (mean difference= 22.4, *p* = .034; F= 5.367). However, five of these experienced leaders decreased in LPI scores at T1 (Figure 1).

Focus group interview findings confirmed that network leader trainees recognized that their leadership behavior gradually improved. They mentioned that they were more aware of other professionals' intentions and therefore could more easily persuade others to join actions. Some network leaders added that at the start of the programme they had underestimated the difficulty of the network leader's role and felt insecure.

> During the first year we often told each other 'we do not reach any goal' (PN 1, network 2).

Some network leaders considered bad network performance, for example when a GP never attended network meetings, a result of their own incompetence. In their views, issues like dealing with the competition between organizations and changing negative attitudes appeared to be persistent and difficult to change.

> You are dragged into the negativity of network participants and I feel not able to stay positive and to change the network participants attitude (CN 5, network 8).

Network leaders identified support of their management and duo-leadership as important facilitating factors towards their leadership behavior. Management support, which was sometimes lacking, could ensure sufficient time for their network leadership. Duo-network leadership was a facilitating factor because of the possibility to share the responsibility of the leadership with a colleague, to learn from the other's leadership competencies and to motivate each other when problems arose.

Network participants generally accepted the network leadership. They mostly valued improved communication and coordination. They considered enthusiasm and decisiveness as the most important characteristics. Adequate chairmanship and being able to involve different network participants were mentioned as desirable elements. Yet, participants also stated that some leaders lacked decisiveness and assertiveness, or leaders were perceived to be too decisive, with network participants insufficiently included in these decisions.

> Eh … I think that (name GP) and (name DC) (=a network leader-duo) are very good together. But sometimes I feel a bit of an outsider (CN 3, network 5).

Some participants stated that they needed more clarity on the network leader's role, as this was a new phenomenon.

Table 3: Leadership Practices Inventory scores at T0, T1 and T2

LPI scores	T0 (n=26)	T1 (n=24)	T2 (n=18)
Mean, (SD), [min, max]	203.2, (19.0), [151-246]	206.1, (23.6), [149-234]	213.8, (23.0), [154-250]
Subscales:			
Modelling the way; Mean, (SD), [min, max]	40.3, (4.9), [31-51]	41.8, (4.5), [32-49]	42.2, (5.3), [27-50]
Inspiring a shared vision; Mean, (SD), [min, max]	38.8, (5.5), [28-52]	40.8, (5.1), [30-47]	42.3, (4.6), [36-52]
Challenging the process; Mean, (SD), [min, max]	39.1, (5.9), [26-50]	39.5, (6.3), [25-52]	42.1, (6.2), [27-52]
Enabling others to act; Mean, (SD), [min, max]	44.5, (3.8), [37-51]	45.4, (4.8), [35-57]	46.2, (3.9), [41-54]
Encouraging the heart; Mean, (SD), [min, max]	40.6, (5.1), [27-48]	40.8, (6.2), [20-49]	40.9, (5.9), [23-48]

SD=Standard Deviation, LPI=Leadership Practice Inventory

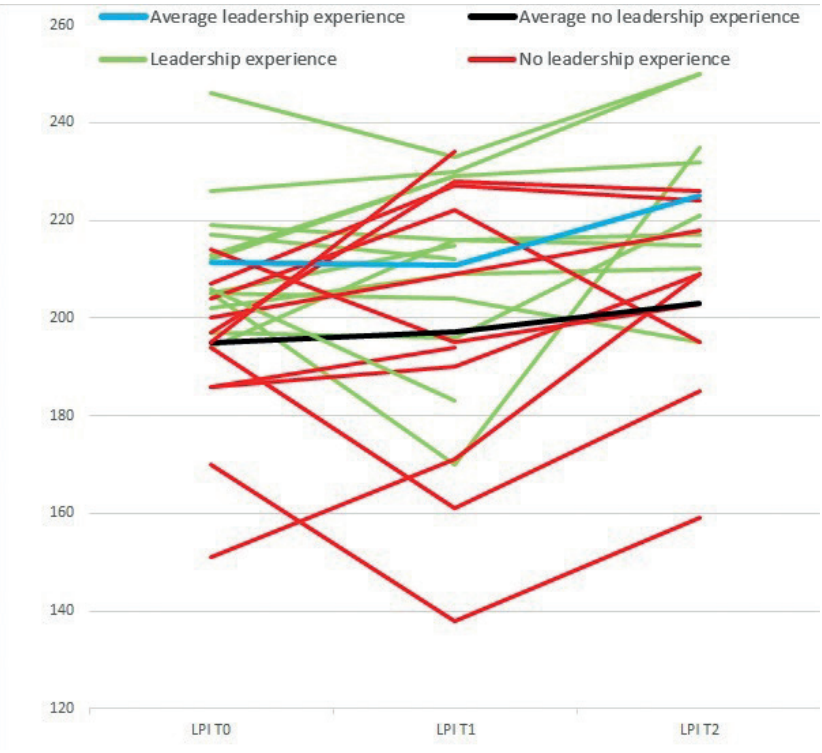

Figure 1 LPI scores at T0, T1, T2; leadership experience included

x-ax: LPI T0=measurement at enrolment; LPI T1= measurement after one year; LPI T2 measurement after two years

y-ax: 120-260: total score on LPI, per network leader

LPI = Leadership Practices Inventory

Healthcare Outcomes

Both network leaders and network participants stated that the network leader contributed to improvements in the network's quality of care.

> Our network has a leader, but suppose that she will disappear. Then, I am curious what will happen next. We made a lot of improvements the past years (DC 1, network 14).

Network leaders recognized that sufficient time was needed to achieve the desired results in dementia care.

> I noticed we can help each other a lot. We are like two diesel trains, we keep on going and look what we have achieved now (CM 1, network 2).

DISCUSSION

This study explored the experiences, added value and successful elements of a two-year clinical leadership programme that focused on supporting primary care (nurse) professionals in a network leadership role. Coaching sessions facilitated a learning process regarding personal competencies, collaboration issues and role clarification. Group meetings focused on exercising transformational leadership behavior and facilitated the exchange of experiences. Most learning goals were aimed at personal competencies, such as clearly articulating one's own opinion and evaluating one's own progress. Collaboration-related learning goals were less addressed. Perceived transformational leadership behavior improved significantly during the second year of training.

In an earlier, separate study, we evaluated the merits and drawbacks of the DementiaNet programme based on the quality of care and network integration [9]. From this evaluation, we learned that the presence of active, capable network leaders was an important facilitating factor for a better quality of care and integrated network collaboration. This study's results strengthen the evidence for these findings and support the assumptions that leadership is important for the implementation of integrated care models [1]. However, network leadership is still a new phenomenon.

At the start of the programme, trainees appeared to be unaware of which leadership behavior was needed and assessed their own behavior as relatively high. Participants with leadership experience started the programme with higher scores, but they followed the same improvement pattern as non-experienced leaders: their scores either slowly increasing or decreasing during the first year and then increasing in the second year. Perhaps this initial high ranking caused the decreasing trend in the perceived leadership behavior in the first year, since some leaders started to recognize their personal incompetence through the experience of the network practice and the discussions within the coaching trajectories. This phenomenon is consistent with the Four Stages of Learning theory, which suggests that individuals are initially unaware of how little they know or unconscious of their incompetence. After a process of recognition, individuals consciously acquire skills [25]. This succession may be an explanation for the increase in perceived transformational leadership behavior during the second year of training.

Nursing leaders preferred duo network leadership. This preference may be due to the novelty of the network leader's role; in duos, they were able to support each other. Another possible explanation is that nurses having low levels of self-confidence when relating to other medical professionals still occurs [26] and mutual support between the leadership pair stimulates their empowerment. This reason implicates that in future leadership training programmes relational and process-management skills in particular should be practiced, such that nurses become more empowered and can better comprehend the impact of collaboration with other professionals. We therefore appeal nursing health care organizations to create possibilities of support and training programmes that help nurses to further develop themselves in clinical leadership roles.

Regarding successfulness of the various training elements, we found that the combination of personal coaching, group training and providing a learning environment in which network leadership can be practiced step by step was positively evaluated and contributed to leadership development. In other recent clinical leadership training programmes, for example programmes by the British National Health Service, these elements are also included [27]. Some programmes use only one training element, for example either group sessions [28] or personal coaching [29], and these studies also found positive results on leadership development. However, these programmes did not address leadership in an integrated care setting.

This study is one of the first studies that evaluated leadership development in an integrated primary care setting [6] and adds new knowledge on the role of clinical leadership in the implementation of integrated care and what kind of support these leaders need. Triangulation based on quantitative methods, qualitative methods and different qualitative data sources, e.g. network leaders and network participants, ensured reliability and validity of the results. Integration of both qualitative and quantitative data collection and analysis provides in-depth insights into the effects of the leadership training on the different levels of Kirkpatrick. A limitation of this study is that the quantitative data were collected via a self-assessment tool, which may have evoked socially desirable responses. With this tool, only individual perceived leadership characteristics were measured and neither actual leadership behavior nor the leaders' interprofessional competencies were included. Moreover, because our sample was relatively small and context specific, it is more difficult to generalize the results to a broad population. We did not use a controlled design, which makes it impossible to draw firm conclusions. Despite these limitations, the mixed methods design enabled us to better understand the programme's working mechanisms.

Our study suggests that nurse professionals are able to successfully fulfil the clinical leadership role in interprofessional networks. As interprofessional work is becoming prominent, it is important that students show more awareness of what leadership in this setting constitutes. Already, leadership programmes for nursing students demonstrate improved leadership skills [30, 31], but again are not yet focused on interprofessional practices. Further research, that addresses the effect of network leadership support on medical and care students and professionals is recommended, preferably in a larger sample. This new study should be followed by research that is aimed at examining the effects of improved network leadership on the quality of integrated patient care.

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6.

Identification of influencing factors and strategies to improve communication between general practitioners and community nurses: a qualitative focus group study

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ABSTRACT

Background:

As the number of patients with complex healthcare needs grows, interprofessional collaboration between primary care professionals must be constantly optimized. General practitioners (GPs) and community nurses (CNs) are key professions in primary care; however, poor GP-CN communication is common and research into the factors influencing its quality is limited.

Objective:

To explore patient- related GP-CN communication and facilitating and hindering factors, and to identify strategies to enhance this communication.

Method:

A qualitative focus group design was used to identify the facilitating and hindering factors and strategies for improvement. In a Dutch primary care setting, 6 mono-professional focus group interviews (3 meetings of 13 GPs; 3 meetings of 18 CNs) were organized between June 2015 and April 2016, recorded and transcribed verbatim. Two independent researchers performed the coding of these interviews, identifying their categories and themes.

Results:

Results show that, despite the regular contact between GPs and CNs, communication was generally perceived as poor in effectiveness and efficiency by both professions. Mutual trust was considered the most important facilitating factor for effective communication. Profession-specific factors (e.g. differences in responsibility and profession-specific language) and organizational factors (e.g. lack of shared care plans, no in-person communication, lack of time) may be of influence on communication. Participants' suggestions for improvement included organizing well-structured and reimbursed team meetings, and facilitating face-to-face contact.

Conclusion:

GP-CN patient related communication benefits most from trusting inter-personal relationships. Interprofessional training programmes should address both professional and organizational factors and should be evaluated for their effect on quality of care.

BACKGROUND

Clear and effective communication between healthcare professionals is one of the most important determinants for successful collaborative practice [1-6]; however, poor communication is common [7-10] and can result in insufficient transfer of patient-related information [10, 11]. In hospitals, dysfunctional physician-nurse communication is associated with high levels of potential risks to patients arising from increased errors in their care [10, 12-14]. The growing numbers of chronically ill patients with complex healthcare needs require primary care professionals to urgently optimize interprofessional collaboration [15] and improve communication between general practitioners (GPs) and community nurses (CNs). CNs perform a variety of nursing tasks that take place in people's homes and focus on prevention, care for chronically ill, patient's recovery after illness or hospitalization and terminal care.

Studies in hospitals and long-term care settings reveal that communication between medical and nursing professionals is hindered by individual, social and organizational factors. Social aspects include hierarchical differences and profession-specific language barriers [9, 16-18]. Whereas nurses often describe patient problems in a detailed way, doctors tend to use brief and factual communication [13, 19]. Organizational barriers include difficulties in reaching doctors by telephone [8] and poor quality of multi-professional team meetings [20].

Primary care collaboration has been the subject of several qualitative studies, which suggests that mutual respect and trust are key aspects of interprofessional care [21-24]. GPs and CNs are key players; however, poor GP-CN communication is common in daily clinical practice [22, 25]. Until now, GP-CN communication has been rarely studied in detail; therefore, we aimed to identify the factors influencing GP-CN communication and the perceptions and attitudes underlying it. Our primary focus was to investigate how GPs and CNs experience their interprofessional communication and to identify hindering and facilitating factors, as well as identifying strategies to enhance their communication.

METHODS

Methodology/research design

A qualitative, explorative research design was used with focus group interviews, because it could be expected that interactions within the group would stimulate the exchange of anecdotes and comments. To ensure high methodological quality, we applied the Consolidated Criteria for Reporting Qualitative Research (COREQ) [26].

Setting and participants

In the Netherlands, the primary and community care system has a wide variety of providers, including GPs, CNs and practice nurses (PNs). GPs work in group practices (33%), in two-person practices (39%) or in a solo-practice (28%). CNs are employed by community-care organizations and work mostly in teams of 10-12 colleagues in a specific region. The community care is a regulated market system and therefore competition exists between organizations [27].

GPs and CNs were recruited using convenience sampling. No exclusion criteria were applied to ensure a broad range of opinions and the acquisition of rich data. Participants were recruited via training sessions for primary care professionals organized in the context of the DementiaNet project [28] (*n*=6 CN); via a regional newsletter for GPs (*n*=1 GP), and via the personal networks of the researchers (*n*=15 CN, *n*=17 GP). In total, 39 professionals responded (21 CNs,18 GPs); however, 3 CNs and 5 GPs were not able to attend the meetings due to personal circumstances. Participants received a small reward after participation.

Data collection

The focus group interviews were organized between June 2015 and April 2016. The interview guide was based on themes that emerged in previous research on interprofessional doctor-nurse communication in other settings [8, 13], interprofessional collaboration [3, 29] and expert opinion. Topics related to individual attitudes and experiences, barriers and facilitators, quality of care and common strategies for overcoming barriers. After the first meeting of both groups, interview topics were added, including attitude towards autonomy and feelings experienced during communication (see Supplementary File1). Mono-professional groups were formed to create an atmosphere of equality and trust, knowing that hierarchical relationships could hinder open discussions [30]. Two experienced independent facilitators (RvdS, MP) led the sessions (mean duration 80 minutes). At the start of the meetings, participants were explicitly invited to speak freely about the experienced problems in a strict confidential atmosphere. Participants provided written consent and filled in a paper form about their background, clinical practice and communication methods. After each meeting, the facilitators and the primary researcher (MN) summarized the main results and discussed new insights.

Discussions were recorded and transcribed verbatim. A summary of the main results was sent to participants for comments on interpretation and completeness, which led to minor adjustments. Interviews were organized until we sensed that sufficient insight was attained and data saturation was reached.

Data analysis

ATLAS.ti (version 7.1.5) was used to facilitate thematic content analysis [31]. A codebook was developed based on the interview guide, and open coding was applied. The properties and dimensions of categories were identified and altered during the coding process. After the initial coding, the data were categorized and overall themes and sub-themes were formed. To improve the validity of these categories, two researchers (MN, IM) independently coded the first two transcripts and reached consensus on conceptual labels and categories. Subsequent transcripts were coded by IM and checked by MN. Differences were discussed until consensus was reached.

RESULTS

Participant characteristics

For each profession, saturation was reached after three sessions. In total 18 CNs participated; 16 were women (88.9%), mean age 44.8 and mean 13.4 years of experience in primary care. All CNs had a bachelor's degree in nursing. Thirteen GPs participated; eight were women (61.5%), mean age 47.2, and mean 16.3 years of experience. The participants worked in different regions and practices.

Patient-related communication usually concerned complex patient issues, including palliative care, frail elderly and wound care. Topics of discussion included the deterioration of patients' health and the need for coordination or follow-up after events such as hospitalization. Communication mainly took place by telephone and email. Contact frequency varied from occasional to daily, with the latter mostly occurring in the case of terminal care or crisis situations. Table 1 summarizes the demographic characteristics of the participants and practice essentials.

Table 1. Baseline characteristics of participants / results of paper forms, December 2016

	Community nurses, (N=18)	**General practitioners, (N=13)**
Age in years, Mean, (SD), [min-max]	42.8, (12.6), [24-60]	47.2, (11.4), [35-69]
Women (%)	88.9	61.5
Work experience in years, Mean, (SD), [min-max]	13.4, (12.1), [0-40]	16.3, (11.4), [4-41]
≤5 years, n, %	12, 66.7	1, 7.7
>5 years, n, %	6, 33.3	12, 92.3
Practice in region, %		
Urban	64.7	46.2
	5.9	30.8
Urbanised countryside	29.4	23.1
Rural		
Practice in, No		Not applicable
Community-care organization	16	
Solo nursing practice	1	
Other	1	
Primary care practice, No	Not applicable	
Solo practice		2
Duo practice		3
Medical health centre		4
Multi-professional health care centre		4
Participation in multi-professional meetings (yes, %)	83.3	84.6

Number of collaborative community-care organizations per GP, %	Not applicable	
1		0.0
2 to 3		61.5
4 to 6		38.5
>6		0.0
Number of CN/GP or GP/CN that share patient care, %		
None	5.6	0.0
1 to 5	6.7	50.0
6 to10	33.3	33.3
>10	44.4	16.7
Number of CN/GP or GP/CN that are known in person, %		
none	0.0	8.3
1 to 5	40.0	33.3
6 to 10	40.0	33.3
>10	20.0	25.0
Methods of communication, % between GP/CN		
Phone calls	100	84.6
Virtual meetings, asynchronous	18.8	46.2
In-person meetings	93.8	84.6
Emails	75.0	46.2
Letters	6.3	0.0
Through care plans at patients home	81.3	92.3
Other	31.3	0.0

CN, community nurse; GP, general practitioner; SD, standard deviation.

Thematic factors

Our content analysis revealed that trusting interprofessional relations was the overall theme to effective communication. Factors were summarized into three subthemes: profession-specific factors, organizational factors and improvement strategies. The results are summarized in Table 2, and relevant quotes are presented in Table 3.

Profession-specific factors.

All participants stated that communication improves when you know each other in person and trust each other. GPs emphasized that competency and a sense of responsibility in CNs enhanced their trust; therefore, they preferred collaboration with skilled and engaged nurses.

> When she [specific CN] calls, then something is wrong. Then, I know I have to take action (GP 5, focus group 3).

CNs actively worked to gain trust, for example by performing well on agreed-upon tasks. They explained that they felt unequal to GPs because of their lower levels of education, power of influence and accountability in patient care. GPs did not explicitly mention hierarchical differences.

A lack of shared responsibility was often mentioned as a barrier to effective communication. Shared care plans were scarce, which often led to the late transfer of essential information, causing mutual annoyance; for example, GPs stated that CNs regularly contacted them in crisis situations without making them aware of previous actions taken by CNs. GPs experienced this late appeal for help as CNs wanting to pass their responsibility onto them. CNs mentioned similar problems; in their opinion, GPs often did not want to act on requests immediately, and lacked a sense of responsibility and involvement. They felt that their concerns were not taken seriously and felt obliged to confront and criticize GPs displaying that behavior.

> Then it is good to state: ”I am not taking responsibility for this situation any longer, when you [GP] choose not to visit the patient”. Then you point out your expectations clearly (CN 1, focus group 2).

This perceived offloading of responsibilities harmed the building of interprofessional trust. GPs and CNs acknowledged their mutual lack of insight into each other’s tasks and professional domains. GPs valued nurses for being empathetic and considerate to patients’ opinions and goals; however, CNs questioned whether GPs really understood the extent of their profession. Additionally, differences in the structures for presenting information between medical and nursing professions was identified as a barrier. GPs mentioned that CNs usually presented patient information with too many details on non-medical issues.

> I do not need to chat about vanilla custard and the patient having a fine day (GP 10, focus group 6).

Moreover, GPs said that CNs were unclear about their reason for consultation. This made GPs unsure about what was being requested; for example, whether they needed to provide information or give advice or if they were being asked for home visits.

Organizational factors.

All participants mentioned accessibility by telephone as crucial for communication. Although the exchange of mobile phone numbers was considered important for easy contact, GPs were rather reluctant to share these other than on an incidental basis or in specific situations (e.g. terminal care), as they feared frequent disturbance. Email was often used, though privacy regulations sometimes hampered this method of communication. Most GPs appreciated the CNs’ presence at multi-professional meetings. However, CNs often were not part of this core team, as CNs were not able to provide one single nurse as liaison to their nursing team. All GPs used receptionists as an intermediate person to organize communication with patients and other healthcare professionals. Only some GPs realized that this might hinder their direct communication with CNs.

> Yes, we are a fortress that you cannot pass easily (GP 11, focus group 6).

CNs indeed considered receptionists to be a major barrier, as they did not always pass on messages, leaving requests unanswered. In some practices, PNs were installed, which was considered to facilitate effective communication. CNs regarded PNs as equal collaborating partners as the majority have a nursing background, and considered them to be easily approachable and as a more direct link with the GPs.

Fragmentation and discontinuity resulting from market mechanism in community-care organizations were identified as barriers. GPs usually collaborated with 3 to 5 different CN teams of up to 12 people. These teams were employed by various organizations, each with their own communication methods and strategies.

> I think the fragmentation of care is immense. It hinders communication and good patient care (GP 1, focus group 1).

CNs felt hampered by the many different GPs they work with, especially in urban environments where GPs often work part time in group practices with a large catchment area.

Participants considered their lack of time as an important barrier. Adequate reimbursement is not available for extensive communication, such as interprofessional team meetings. Some GPs refused to attend multi-professional meetings to limit time-consuming consultations with collaborating professionals.

> Each doctor gets paid for doing his job. The physiotherapist gets paid for doing his job. The CN gets paid for doing her job. But nobody gets paid for integrating these activities (GP 8, focus group 3).

GPs preferred less frequent communication due to lack of time, whereas CNs wanted more frequent contact.

Actual and future strategies to improve communication.

All participants used strategies to build interprofessional relationships and trust. CNs were the most active; they initiated face-to-face contact by visiting GPs, organized shared visits or consultation meetings, and discussed various roles and tasks. Some CNs specifically stated that they adapted their communication style to the GPs' wishes for a more structured format. GPs mentioned they had improved communication by training CN teams on common care problems and developing shared care programmes for elderly patients. GPs also tried to reduce the number of community-care organizations they communicated with, by motivating patients and their carers to choose their preferred organization or by referring patients to one specific district nursing team.

> Smaller teams are better, so I can recognize the shirt numbers (GP 12, focus group 6).

Within this team, they limited communication to one specific CN.

Participants articulated possible strategies for effective communication. On micro level, these strategies included improving team communication competencies, e.g. by using feedback loops and discussing patient cases that did not meet quality standards. On meso level, both GPs and CNs emphasized the importance of communication skills training and the use of practical communication tools that structure information. The vocational training of GPs should focus more on collaboration and communication, since GPs are only trained as solo practitioners. Participants also expressed their wishes for better access to information and communication technology tools that would enable them to share information more easily.

> We have to organize the underlying collaboration structure. Because this structure is lacking for many GPs (GP 8, focus group 3).

On macro level, participants suggested that governments should consider modifying laws and regulations to reduce competition within the primary care sector and ensure adequate reimbursement for time investments in structural team meetings.

Table 2: Summary of factors hindering GP-CN communication and strategies to improve communication, December 2016

Hindering factors	
Profession specific, characterised by Differences in	Organizational specific, characterised by Distance:
Education levels	Lack of personal contact
Responsibilities	Lack of easy access
Hierarchical position	Lack of shared access to care plans
Language	characterised by Disorganisation:
Perspective on care	Working from separate organizations
	Lack of time and financial support
Improvement strategies	
Present in daily practice:	Future opportunities:
CN:	CN/GP:
More face to face contact	Communication skills training
Shared patient visits	Communication tools
Defining tasks and responsibilities	Information and communication technology
Building rapport	GP:
Adapting communication style	Improving team skills (feedback)
GP:	Collaboration skills in vocational training
Small number of CN teams	Less competition between community-care organizations
One CN as single entry point	
	Adequate reimbursement

CN, community nurse; GP, general practitioner

Table 3. Quotes on profession specific, organizational factors and points of action, December 2016

		Quote
Professional specific factors		
GP 5 (3)	Trust	When she [*specific CN*) calls, then something is wrong. Then, I know I have to take action.
CN 3 (2)	Trust	And then I received a text message from the GP 'It is late already, but I want to thank you for excellent teamwork' And then I thought 'Wow'. I kept this message in my phone for a long time. Absolutely!
CN 7 (4)	Task perception	I wonder: 'Do they (*GPs*) have sufficient overview of our tasks? I believe GPs are not aware of everything we do.
CN 12 (5)	Task perception	I think many GPs don't have a clue about what's going on in the community and what's going on at the patient's home. (...) We (*GP and CN*) had dressed the wound on a patient's feet and the patient was ready to leave the GP's practice. I asked: "Can you manage to go to work? Can you wear your shoes?" And she (*GP*) looked at me and asked "What kind of question is that?" I said: "That is important, isn't it? You invented a very nice bandage-shoe, but maybe she can't wear it under her uniform". Later she (*GP*) said: "Yes, you were right. You start, where I finish."
GP 3 (1)	Task perception	We work problem-orientated: if there is a problem, a plan is made. That is not the way a CN works. The nurses see more details and have another approach. Simply said, we are living in different worlds.
CN 1 (2)	Task perception	Then it is good to state "I am not taking responsibility for this situation any longer, when you *(GP*) choose not to visit the patient". Then you point out your expectations clearly.
CN 3 (2)	Equality	You (*GP*) are obviously unequal regarding education and in final responsibility.
GP 10 (6)	Communication style	I do not need to chat about vanilla custard and the patient having a fine day.
Organizational factors		
CN 17 (5)	Acquaintance	We cover a large area, also in which other community-care organizations are also active. Indeed, I guess about ten organizations. And in this same area, at least twenty GPs are working. Of course, you lack trusted relations with certain GPs. So, yeah well, I cannot build a special relationship with all twenty of them.
CN 2 (2)	Acquaintance	I don't know the GP when I consult him about one of my clients (...) I don't know how they look like. I only know 3 of them by name and working address. And I find that difficult. I feel jealous *(on a colleague who works in a small village).*
CN 9 (4)	Distance	When you call the GP, you get the receptionist. And you don't get an answer immediately. (...) but will be called back at the end of the morning. That isn't always the case, by the way. The receptionist calls back with the GP's answer. When I question the answer and want to know the underlying motives, I cannot ask any further questions.
GP 11 (6)	Distance	Yes, we are a fortress, that you cannot pass easily.
GP 13 (6)	Disorganization	I recently wrote my findings in a nursing care plan at the patient's home. But then I found out they (*CNs of the community-care organization*) had recently introduced an electronic system. Hilarious!
GP 8 (3)	Disorganization	Each doctor gets paid for doing his job. The physiotherapist gets paid for doing his job. The CN gets paid for doing her job. But nobody gets paid for integrating these activities.
GP 1 (1)	Disorganization	I think fragmentation of care is immense. It hinders communication and good patient care.

Table 3. continued

Points of action		
CN 11 (4)	Already undertaken	I think the GPs also saw the advantage of the new agreements in elderly care. They do not have to do everything on their own and keep worrying about their patients.
CN 10 (4)	Already undertaken	I communicate through 'SOEP' (Symptom, Observation, Aetiology, Problem). Then, I really make them happy (*laughing*).
CN 14 (5)	Already undertaken	Well, by talking the way the GP thinks. Because he wants to hear a problem.
GP 5 (3)	Already undertaken	I am actively reducing the number of organizations to work with. When I visit my patients in hospital, I tell them which organization they have to choose when they need follow up care.
GP 8 (3)	Already undertaken	When we want to support people to stay at home independently as long as possible, we do not want nurses to pamper and to take over tasks too soon. The GP practice should share this vision with collaborating community nursing teams and welfare teams.
GP 8 (3)	Future strategy	We have to organize the underlying collaboration structure. Because this structure is lacking for many GPs.
GP 12 (6)	Future strategy	Smaller teams are better, so I can recognize the shirt numbers.

CN, community nurse; GP, general practitioner; (number), focus group number

DISCUSSION

This study reveals that interprofessional trust is key to effective GP-CN communication. Although this finding in itself seems rather self-evident, underlying factors were identified that influence communication at both the professional and organizational levels. We found that boundaries between nursing and medical domains are perceived as sharp and difficult to cross. Inequality in hierarchical positions, differences in communication style and lack of a shared vision on care were addressed as important barriers. Organizational factors, such as a lack of personal contact and shared care plans, expanded the distance between professionals and created feelings of distrust. Nevertheless, both professional groups identified and applied strategies to enhance interprofessional trust to improve patient-related communication.

Our findings regarding GP-CN communication are consistent with previous studies on primary care collaboration, which revealed that successful interprofessional collaboration is characterized by mutual trust and understanding, agreement on tasks and responsibilities [24, 32-35]. Trust could be developed by providing ample time for collaboration [36], by incorporation of concepts of a shared holistic view [37], and better understanding of other professionals' skills and organizational contexts [38]. Interprofessional trust is, however, hindered by direct confrontation; for example, by inequality, a lack of team goals and geographical proximity [29], or by challenging the GP's authority or not cooperating [21].

Our results are also in line with studies on communication in hospitals and long-term care settings, which showed identical factors at professional and organizational levels [16-19, 30]. In primary care specifically, medical and nursing professionals often work in different locations and are affiliated with different organizations with varying interests, visions, procedures and methods of working. These differences increase the challenge of ensuring adequate interprofessional collaboration and communication. Indeed, in our study, organizational factors in primary care seemed even more diverse and disruptive than in other settings. Some organizational barriers are difficult to overcome, including lack of time and financial reimbursement for communication and organization of interprofessional meetings. Additionally, CNs work part-time work and regulated market mechanisms lead to increased fragmentation of community care delivering.

CNs expressed difficulties in crossing professional boundaries because of hierarchical differences, which caused feelings of inequality. GPs should be aware of this, especially since previous research pointed out that the GP's support is crucial for collaboration in primary care [29, 33]. However, GPs claimed that their vocational education programmes lacked collaboration practice and interprofessional communication skills training. Collaborative skills and talents may be particularly less prominent for GPs in the Netherlands, as almost one-third work as solo-practitioner, which is_significantly less common in other European countries [27].

In this study, we explicitly aimed to identify useful points of action for improving communication. Communication in primary care appears to be a complex phenomenon, and the methods to cope with this complexity varied between professions. GPs showed mainly reductionist and exclusion strategies, investing in reducing complexity and focusing on short-term gains for themselves [39, 40]. For example, they diminished the number of collaborations with CNs and reduced time-consuming consultations. Contrary to GPs, CNs demonstrated connecting strategies and strived to become the GPs' trusted partners in care. The development of interprofessional learning strategies incorporating collaboration skills between GPs and CNs could be promising for improvements in primary care. In hospital and long-term care settings, training in structured communication has been effective in reducing patient safety issues [8, 9, 13, 17, 19]. Likely, a combination of multiple interventions will be needed, as isolated solutions cannot overcome all factors we have identified.

To the best of our knowledge, this study is the first to extensively explore the underlying ideas and feelings of sub-optimal GP-CN communication in a primary care setting. It therefore contributes new insights and knowledge that may facilitate the improvement of collaborative primary care. To ensure methodological quality, experienced independent moderators interviewed mono-professional focus groups to enable them to safely share their ideas, and we managed to obtain rich data from professionals with varying backgrounds from different organizations. Our study was conducted in the Netherlands, which is largely characterized by inter-organizational collaboration; hence, CNs are affiliated with community-care organizations and GPs work in solo or group practices. This might limit the transferability of our results to settings in which nurses and GPs work in the same building; nevertheless, most of the GPs who participated in our study worked in medical and multi-professional centres and, despite the fact they worked in same buildings as other professionals, they experienced similar problems with communication. In the last decade, the number of female GPs has increased to 55.3 % in Dutch primary care. Therefore, our sample reflects the actual situation in clinical care.

From literature, we know that communication between physicians and nurses is problematic in other countries as well [1, 8, 9, 29]. Since organizational arrangements, education programmes and collaborative practices may differ between countries, different emphases and solutions for poor communication might be required.

As shown in this study, promoting trust and crossing professional boundaries are the most important targets for improving patient-related communication and enhancing CN-GP collaboration. Training and education should focus on the development of interprofessional learning strategies in primary care, enabling professionals to overcome these barriers and improve their communication skills. Equipping healthcare professionals with the right skills is equally as important as focusing on knowledge transfer. Future research could investigate the effectiveness of these measures, as both the quality of care and job satisfaction of healthcare workers may be substantially improved when collaboration among their teams is enhanced.

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ADDITIONAL MATERIAL:

TOPIC LIST FOCUS GROUP, September 2015, Final version

Introduction

- Welcome
- Introduction round
- Permission to record the session
- Paper forms (demographic characteristics and informed consent)

Background

Adequate communication between professionals in healthcare is crucial for safe, effective and efficient patient care. In primary care, patient related communication between physicians and nurses lacks quality. However, research on determinant factors is scarce. This interview focuses on patient related communication between general practitioners (GPs) and community nurses (CNs). It aims to explore facilitating and hindering factors in GP-CN communication and identify strategies to enhance effective communication.

Regulations focus group

- We apply strict confidentiality.
- Please speak freely about perceived problems.
- There are no good or false answers.
- We welcome positive and negative comments.

COMMUNITY NURSES

	Topics/ Questions	**Extra topics**
1	**Opening questions:** Describe your practice situation: rural, city, what kind of organisation structure? Why did you choose to be a Community Nurse? Aspects of Community nursing that attracts you most?	What is the impact of autonomy?
2.	**Introduction topics:** How does communication with GP/GP practice takes place? • frequency • acquaintance with GP • via telephone or other medium What is the subject / topic of patient related communication? Which subjects / topics are rarely discussed? Typology of patients: complex/ vulnerable or else?	Communication with Practice nurses Practice receptionists?

3.	**Transition topics: barriers and facilitators** **Individual experiences** Example of effective communication: Why was this conversation effective? Emphasis on explanations / underlying mechanisms Example of ineffective communication: Why was this conversation ineffective? Emphasis on explanations / underlying mechanisms?	Possible influencing factors: • organisational challenges • individual attitudes • unprofessional behaviour • language use • role of practice nurse or receptionist as intermediate
4.	**Key topics:** Consequences for the quality of care: Value of effective communication for patients and nursing team? Place yourself in the role of the GP: • Satisfaction? • Irritation? • Or.....? Underlying feelings during communication: • Mutual trust or distrust? • Shared goals? • Or......? Task perception: • What are your expectations towards the GP concerning communication about shared patients? • What is your role/task in communication about shared patients? • In multi-professional meetings?	Quality and safety risks Impact of: • Acquaintance • Respect • Shared values • Hierarchy • Communication style Ask for examples: What happened? Why?
5.	**Towards a new situation: strategies for overcoming barriers** Which changes are necessary for better patients' value? How can you improve mutual trusting relations? Which actions do you take or could you take yourself to improve communication? Which actions should the GP/ or GP practice take? Which skills or knowledge or attitude are necessary? Interprofessional CN-GP training? Feedback training?	
6.	**Concluding topics (extra)** Invitation to express emotions, that developed during the interview. If you could improve only one factor: which factor and how?	
6.	**Conclusion** Summary of results What issues are not discussed, but essential to add? Follow up: written summary of main results and conclusions will be sent for comments on interpretation and completeness. Thank you very much for participation.	

GENERAL PRACTITIONERS		
	Topics/ Questions	**Extra topics**
1	**Opening questions:** Describe your practice situation: rural, city, what kind of organisation structure? Why did you choose to be a General Practitioner? Aspects of the GP profession that attracts you most?	What is the impact of autonomy?
2.	**Introduction topics:** How does communication with CNs takes place? • frequency • acquaintance with CN • via telephone or other medium What is the subject / topic of the patient related communication? Which subjects / topics are rarely discussed? Typology of patients: complex/ vulnerable or else?	
3.	**Transition topics: barriers and facilitators** **Individual experiences** Example of effective communication: Why was this conversation effective? Emphasis on explanations / underlying mechanisms Example of ineffective communication: Why was this conversation ineffective? Emphasis on explanations / underlying mechanisms?	Possible influencing factors: • organisational challenges • individual attitudes • unprofessional behaviour • language use • role of practice nurse or receptionist as intermediate
4.	**Key topics:** Consequences for the quality of care: Value of effective communication for patients and GP (practice)? Place yourself in the role of the CN: • Satisfaction? • Irritation? • Or.....? Underlying feelings during communication: • Mutual trust or distrust? • Shared goals? • Or......? Task perception: • What are your expectations towards the CN concerning communication about shared patients? • What is your role/task in communication about shared patients? • In multi-professional meetings?	Quality and safety risks Impact of: • Acquaintance • Respect • Shared values • Hierarchy • Communication style Ask for examples: What happened? Why?

5.	**Towards a new situation: strategies for overcoming barriers** Which changes are necessary for better patients' value? How can you improve mutual trusting relations? Which actions do you take or could you take yourself to improve communication? Which actions should the CN or CN organisation take? Which skills or knowledge or attitude are necessary? Interprofessional CN-GP training? Feedback training?
6.	**Concluding topics (extra)** Invitation to express emotions that developed during this interview. If you could improve only one factor: which factor and how?
6.	**Conclusion** Summary of results What issues are not discussed, but essential to add? Follow up: written summary of main results and conclusions will be sent for comments on interpretation and completeness. Thank you very much for participation.

7.

Communication between community nurses and general practitioners lacks structure: an explorative mixed methods study of audio-taped telephone calls in daily practice

Submitted as:

Minke S. Nieuwboer, Rob van der Sande, Irma Maassen, Marcel G.M. Olde Rikkert, Marieke Perry Marjolein A. van der Marck. Communication between community nurses and general practitioners lacks structure: an explorative mixed methods study of audio-taped telephone calls in daily practice

ABSTRACT

Background:

Primary care nurses and doctors evaluate their communication to be poor. However, their actual communication has hardly been investigated and explicit strategies for improvement are unclear.

Objectives:

To explore actual doctor-community nurse communication in primary care and gain insights into communication style, and conversation structure and its determinants.

Methods:

A mixed methods design was applied. Telephone conversations between community nurses and general practitioners, practice nurses, or practice assistants in the Netherlands were recorded and transcribed verbatim. We measured structure and the duration of their conversations, and community nurses' self-confidence towards doctors and their trust in and familiarity with the conversation partner. Correlations between these determinants were calculated using Spearman's correlation coefficient. A thematic analysis was applied to the transcripts of the conversations.

Results:

The 26 community nurses recorded 36 conversations with doctors and other general practice professionals. Qualitative analysis revealed that many conversations lacked structure and conciseness, i.e., the nurses started conversations without a clearly articulated question and did not provide adequate background information. The mean duration of their conversations with doctors was 8.8 minutes, which was significantly longer than their conversations with practice assistants (p=0.004). Shorter conversations were better structured. Nurses with higher self-confidence towards doctors communicated in a more structured way (p=0.001).

Conclusion:

This exploratory study of actual nurse-doctor telephone conversations in primary care identified communication structure and nurse self-confidence towards doctors as key targets for the improvement of interprofessional communication, which may increase the effectiveness of nurse-doctor collaboration.

BACKGROUND

Ineffective patient-related communication between professionals is common in primary healthcare and negatively impacts the quality of care provided [1]. The number of community-dwelling elderly and chronically ill patients with complex multiprofessional care needs is growing [2], meaning that effective interprofessional collaboration and communication in primary care is becoming increasingly important. Despite this, the collaboration between community nurses (CNs) and general practitioners (GPs), key players in primary care, is often characterized by poor teamwork and little trust, which negatively affects their communication [3].

Although nurse-physician communication has been subject of several studies, actual (non-simulated) conversations between nurses and doctors in primary care have not been explored [4]. Earlier studies have suggested that mutual respect and trust are key facilitating factors [5, 6]. These studies also show that both professions have different views on essential aspects of communication, with doctors favoring ad-hoc dialogue and nurses preferring the use of structured meetings. Increasing the level of personal contact was found to enhance the positive attitudes of doctors toward nurses [7]. Interviews with both CNs and GPs identified multiple organizational and professional barriers influencing nurse-doctor communication in primary care [8]. Organizational barriers include a lack of collaboration between professionals working for different organizations, differences in hierarchical structure, and a lack of structure facilitating in-person contact. The professional barriers include a lack of mutual trust, different communication styles, and the use of discipline-specific language [8, 9].

In hospital and long-term care settings, communication protocols have been introduced to overcome these barriers, and have been shown to improve communication structure and enhance nurse-doctor collaboration, teamwork, and patient safety [10, 11]. The use of a communication protocol in a hospital setting also empowered nurses to better integrate with their co-workers and physicians [12]. In primary care, the use of communication protocols is uncommon and little is known about the structure and content of actual nurse-doctor communication in primary care.

The aim of the present study was to explore actual nurse-doctor communication in primary care to gain insights into conversation structures, communication styles, and their determinants including reflections from community nurses on their communication practice.

METHODS

Study design and population

This explorative study followed a mixed-methods design [13]. This included a quantitative appraisal and qualitative analysis of telephone conversations between CNs and GPs, practice nurses (PNs) or practice assistants (PAs) (BOX 1), combined with focus group interviews [14].

From November 2016 to January 2017, Dutch CNs were recruited for this study via the newsletter and website of the Dutch Professional Nurses Organization and the authors' professional networks.

BOX 1: Community Nurses, Practice Nurses, Practice Assistants in the Netherlands [15, 16]

CNs are educated with a Bachelor of Science degree and perform a variety of nursing roles in patient homes. Their tasks focus on four care categories: prevention of illness, care for the chronically ill, patient recovery after illness or hospitalization, and terminal care. They are employed by homecare organizations that operate in a regulated market system with several nursing teams working in the same region or community.

PNs are educated at an intermediate level of nurse education or at a Bachelor of Nursing degree work under the supervision of a GP and take care of specific categories of chronically ill, especially patients with diabetes, COPD, cardiovascular diseases and elderly with complex problems. Since 2014, PNs also deal with patients who require mental care.

PAs are educated as medical assistants and keep the GP's practice running. They perform various administrative tasks, such as scheduling appointments, staffing reception and arranging laboratory services or tests. Additionally, they are skilled to give medical advice to patients and perform medical procedures like blood pressure measurement, urine tests, wound care, etc.

Data collection procedure (Table 1)

At the start of the study, the CNs provided their baseline characteristics online and assessed their self-confidence when communicating with doctors. The CNs were subsequently asked to record two telephone conversations with GPs between January 15th and February 28th, 2017 using Interactive Voice Response (IVR). CNs logged in to the IVR system using a unique code and followed a dialogue scheme to inform the GP/GP practice (i.e., GP, PN or PA) about the aim of the study, asked their verbal consent to take part in the study and started the actual recording. At the end of the conversation, after the CN had left the conversation, the call recipients were asked by the IVR system to rate their satisfaction with the conversation using a pre-taped questionnaire and their phone buttons. Additionally, a researcher (IM) contacted the CNs within one week of recording the conversation and asked them to complete a short online questionnaire on the (professional) background and their familiarity with the recipient. To stimulate the recording of conversations, email reminders were sent weekly. Telephone conversations were transcribed verbatim, excluding all names from patients and professionals and removing background information from professionals.

In addition, between March 6th and March 13th, 2017, CN experiences on communication with GPs/GP practices were explored in focus group interviews [14]. An experienced independent moderator (LT) facilitated the sessions. All group interviews were tape-recorded and transcribed verbatim.

Measurement instruments

CN characteristics

CNs characteristics on age, gender, years of experience in their current job and self-efficacy data were collected via an online questionnaire. Self-efficacy is a domain-specific concept, meaning that self-efficacy relates to the belief of an individual in their capabilities to perform competencies in a specific area. The general Self Efficacy Scale (SES) from Bandura [17] was adapted to a new measurement scale, 'Confidence towards GP' score, comprising three items [18]. CNs were asked to indicate on a five-point Likert scale to which extent they believed to be capable of: 1) being an equal conversation partner to the GP, 2) being a competent conversation partner to the GP, and 3) positively persisting when the GP does not elaborate on recommendations. The scores varied from 1 (not at all sure that I am capable of this) to 5 (very sure that I am capable of this). The 'Confidence towards GP' score was defined as the sum score of these items and could vary from 3 to 15.

Four focus group interviews were organized with all the CNs who recorded conversations with GPs/GP practices. The interview guide included recent communication experiences with GPs/GP practices and the CNs' personal learning goals. Each interview took between 35 and 45 minutes.

Characteristics of the GP/GP practice

The CNs reported the professional background (GP/PN/PA) of their telephone conversation partner. They rated their familiarity with the GP/GP practice ('How well did you know the call recipient?'), and their trust in the GP/GP practice ('How much trust did you have in the call recipient?') using a five-point Likert scale (1 being 'not at all' and 5 'very well/much').

To measure the satisfaction of the GP/GP practice with the conversations, a satisfaction score was constructed ('Satisfaction by GP' score; not validated) using the items of the SBAR [19]. SBAR is a tool to structure communication. It aims to guide expectations and focus on the most important issues to be communicated. For the 'Satisfaction by GP' score, the SBAR primary care version used by the British National Health Service was translated into Dutch. GPs/GP practice professionals were asked five questions starting with 'In your opinion, did the CN…?' using the topics: 1) address a clearly articulated question (S, Situation); 2) give an adequate description of the patient's background and context (B, Background); 3) assess the important aspects of the patient's actual problem (A, Assessment); 4) give clear recommendations on the care needed in the near future (R, Recommendation); and 5) carry out a well-structured telephone conversation (global score). All items were scored on a five-point Likert-scale (1 = strongly disagree, 5 = strongly agree) and combined to generate a total score from 5 to 25 and a mean score from 1 to 5.

Characteristics of telephone conversations

Of all conversations, the duration in minutes was recorded. To determine the conversation structure, three researchers (IM, DO, MN) independently appraised all transcripts of the CN-GP conversations and assessed the conversation structure using the SBAR protocol, similarly to the assessments by GPs/GP practice professionals. Researchers did not have any information about the caller or the receiver. The presence of all four SBAR items in the conversation (Situation, Background, Assessment, and Recommendation) and the ability to carry out a well-structured telephone conversation (global score) were rated on a five-point Likert-scale (1 = strongly disagree, 5 = strongly agree). In case of disagreement, discussion led to consensus. The ‘Conversation structure’ score was composed being the mean score of the five items (range 1 to 5 per item; total scores: min 5, max 25). The conversation transcripts additionally provided qualitative data on content and structure.

Analysis

Descriptive statistics were used to analyze the characteristics of the CNs, GPs/GP practices, and the telephone conversations. The mean scores for conversation duration, GP satisfaction, and conversation structure were compared between the different professional groups within the GP practice (GPs, PNs, and PAs) using a Kruskal-Wallis test, as data were not normally distributed.

Correlations between the variables trust, familiarity and CN’s confidence towards GP and the variables conversation structure, GP satisfaction and duration were analyzed with Spearman’s correlation coefficient. All quantitative data were analyzed using SPSS version 22 and a significance level of 0.05 was used.

Thematic content analysis was applied to all qualitative data, supported by ATLAS.ti, version 7.1.5. The transcripts of the conversations were analyzed with regard to their content, communication style, including structure and coherence. The analysis was performed by one researcher (IM) and checked by another (MN). One researcher (IM) coded and summarized the transcriptions of focus group interviews, the codes and themes were discussed by the research team (MP/MN/IM).

Data integration occurred at the levels of data collection, analysis, and results. The variables (trust, self-confidence, familiarity, structure) and characteristics (CN, GP/GP practice, conversation) in the quantitative analysis were used as a coding framework to guide the qualitative analysis, and the quantitative and qualitative results were compared, integrated by identification of related patterns and jointly reported in the results section [13].

The data collection and analyses are summarized in Table 1.

Table 1. Data collection procedure

Steps	During	Data
Baseline data collection	January 1st and January 15th, 2017	1. Online questionnaire on CN demographic data: 1.1 Age 1.2 Gender 1.3 Years of experience 2. Self-reported confidence rating ('Confidence towards GP' score; min 3, max 15)
Recording of telephone conversation	January 15th and February 28th, 2017	3. Transcribed and anonymized reports: 3.1 Duration 3.2 Conversation structure ('Conversation structure' score; min 1, max 5) 3.3 Content
Data collection after each conversation	January 15th and February 28th, 2017	4. Satisfaction with conversation rating by GP, PN or PA ('Satisfaction by GP' score; min 1, max 5) 5. Online questionnaire CN on: 5.1 Familiarity with GP practice professional (min 1, max 5) 5.2 Trust towards GP practice professional (min 1, max 5) 5.3 Recipient's professional background
Focus group interviews	March 6th and March 13th, 2017	Recorded and transcribed interviews

CN = Community nurse, GP = General practitioner, PN = Practice nurse, PA = Practice assistant

RESULTS

CN characteristics

Twenty-six CNs initiated and recorded 36 conversations with 36 GP practice professionals (Table 2). All but one participants were women and on average 43.8 of age. More than half of the nurses (58,3 %) had more than 5 years working experience.

Participants' mean self-rated score of their self-confidence when communicating with the GPs was 10.2 (SD 2.14; on a combined scale of 3 to 15). The CNs were most confident in being a competent conversation partner to the GP (mean = 3.7, SD 0.72), and least confident in their capability to persist when the GP did not elaborate on recommendations (mean = 3.1, SD 0.82).

Table 2. Characteristics participating Community nurses

n= 26		mean	SD
Age in years*		43.8	10.30
'Confidence towards GP'	Total score (item 1 to 3)	10.2	2.14
	Equal sparring partner# (item 1)	3.3	0.91
	Expert sparring partner# (item 2)	3.7	0.72
	Capability to remain in contact# (item3)	3.1	0.82

SD=standard deviation; *age of one person is missing

#measured on a Likert scale: 1= completely disagree, 2=disagree, 3=neutral, 4=agree, 5=completely agree

All CNs participated in four focus group interviews (n=7; n=9; n=5; n=5). Thematic analysis revealed that in contrast to their relatively high self-confidence scores, several CNs felt they had a lower status than the physicians during the conversation. Moreover, they recognized their elaborate communication style, their tendency to defer from the main points and their difficulty in providing information in a concise manner. This was illustrated by the following quote:

> After the first recording of my conversation with the GP, I realized that I used a large number of words. (CN 3)

Some CNs mentioned that they failed to prepare for the conversations because they would telephone the GP/GP practice from their patients' homes or when driving from one patient to the next. Some CNs hoped that by improving their communication skills, they would be able to influence the GPs' opinions, ultimately resulting in the GPs following their recommendations.

Characteristics related to GPs/GP practices

CNs most often spoke with GPs (n = 23) in their phone conversations, but also with PNs (n = 7) and PAs (n = 6). In 58,4% of the conversations, the CNs were familiar with their conversation partner. In 27.7%, CNs were reasonably familiar and in 13.9 % they were unfamiliar with the GP/GP practice professionals. In 50.0% of the conversations, the CNs trusted their conversation partners, while in 36.1% there was reasonable trust, and in 13.9% only low trust existed between the CN and the GP/GP practice professionals.

The GP practice professionals (n = 29) were generally satisfied with the conversations they had with the CNs, rating them with a mean score of 4.3 (SD 0.57; of a maximum of 5). In seven conversations, the satisfaction scores were missing without a known reason (Table 3). The GP practice professionals were the least satisfied with the CNs' presentation of the background information (mean = 4.1, SD 0.94), and rated the other satisfaction sub-items with a mean score of 4.3 (Situation, SD 0.97; Assessment, SD 0.74; Recommendation, SD 0.82).

The focus group interviews revealed factors that both facilitated and hindered the ability of the CN to communicate with the GP/GP practice. First, the CNs experienced profound differences between the GPs in their communication style and approachability. Sometimes CNs expressed that GPs did not take responsibility nor appreciate their recommendations. Repeatedly, the CNs mentioned having poor access to the GPs, who claimed to be busy and short of time. Occasionally, the CNs experienced lack of trust from GPs.

> But as a CN, it is hard to achieve a direct connection with them (GPs). It is frustrating; before I can state my name, he says: "I have no time; you had better have a real good reason to have made it past my assistant". (CN 7)

Second, the CNs expressed their satisfaction with PNs as conversation partners. The CNs stated that PNs have more time for discussions and felt they were equal partners.

> PNs? They understand what I am talking about. They are nurses too, you know, and we share the same language. (CN 10)

Characteristics of telephone conversations

Duration

On average, the duration of the telephone conversations was 7.9 minutes (SD 4.64). The duration of conversations differed significantly between the CNs and the GPs (mean = 8.8, SD 3.99), CN and PNs (mean = 9.7, SD 6.69), or CN and PAs (mean = 3.6, SD 0.69) (p = 0.004).

Structure

The mean 'Conversation structure' score was 3.8 (SD 0.82). The presentation of background information received the lowest score (mean = 3.5, SD 0.96) and the presentation of recommendations was ranked most highly (mean = 4.2, SD 1.05) (Table 3). A comparison of conversation structure scores between the three types of professionals (GP, PN, and PA) showed significant differences (p = 0.011); CN-PA conversations were significantly better structured than CN-PN conversations (p = 0.019) and showed a trend towards better structured than CN-GP conversations (p = 0.055).

In general, CNs often started the telephone call with the patient's background instead of a clear question; however, the background information was sometimes missing or incomplete. In contrast, the background information and assessment data were often elaborate and not relevant:

> This afternoon I phoned Mrs. (name) about when her operation will be scheduled and she informed me that, indeed, it was scheduled for next Monday. She will be hospitalized for some time. It is still not known how long, but she is, in fact, a very vital woman and this, uh, was discovered over a very short timeframe. Uh… let me see, she discovered it in the beginning of February, and she has had no need of nursing care until now. She has a partner, uh, who can help

> her. Uh, but she has managed everything herself until now. Her recovery will probably take a long time. And this is a very large operation with uncertainty as to whether it, uh, will succeed…. (Transcript 2102)

Information regarding the urgency of the situation was omitted in many cases, leading to uncertainty of GPs about how to respond to requested actions. The conversations with the PNs were especially characterized as chaotic, with fragmented information exchange, partly due to the PNs' unstructured communication style. In some cases, the GPs negatively influenced the conversation structure, as they often interrupted the CNs with remarks and questions. Most CN-PA conversations were well structured, starting with a clear question and specific patient background information with concisely articulated supplementary assessments.

Content

Conversations contained a broad range of topics (n = 66), including medication (n = 16); medical problems (n = 10); wound care (n = 10); activity of daily living (ADL) care (n = 6); complex problems such as social problems (n = 9), cognitive decline (n = 3), and advanced care planning (n = 6); and straightforward questions such as referrals within primary care (n = 6).

Content analysis of the conversations showed that the topics discussed depended on the discipline of the call recipient, with the more complex issues being discussed with GPs. Straightforward topics such as referrals for occupational therapy and medication prescriptions were discussed with PAs, while conversations with PNs mainly concerned ADL, wound care, and social problems. In the CN-GP conversations, regularly more than one topic per patient and sometimes several patients were discussed.

Table 3. Telephone conversation variables: duration, satisfaction GP, and conversation structure.

	Total			General practitioner			Practice nurse			Practice assistant		
	M	SD	n	M	SD	n	M	SD	n	M	SD	n
Duration in minutes	7.9	4.64	36	8.8	3.99	23	9.7	6.69	7	3.6	0.69	6
Satisfaction GP†	4.3	0.55	29	4.1	0.57	20	4.5	0.46	5	4.6	0.47	4
Conversation structure	3.8	0.83	36	3.7	0.83	23	3.3	0.73	7	4.5	0.10	6

†measured on a five-point Likert scale: 1 = completely disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = completely agree.

GP = General practitioner; M = Mean; SD = Standard deviation

Associations between different conversation characteristics

Shorter conversations were better structured (r_s = –0.42, p = 0.01). CNs with higher 'Confidence towards GP' scores had significantly better-structured conversations (r_s = *0.53*, p = 0.001). No significant associations were found between the variables trust and familiarity and the variables conversation structure, GP satisfaction scores, or the duration of the conversation (Table 4).

In line with quantitative data, the content analysis of the conversation transcripts revealed the importance of the CN's confidence towards the GP. In conversations with GPs, some nurses took on a subordinate role; they seemed insecure, hesitant, and used a lot of filler words such as 'uh'. Some nurses took the lead in the communication, resulting in more structured and shorter conversations. In their conversations with the PAs and PNs, the CNs showed more self-confidence. The CN-PN conversations were characterized by the sharing of ideas and the provision of detailed information, in addition to the mutual recognition of each other's perspectives.

Table 4. Associations between trust, familiarity, confidence towards GP and conversation structure, satisfaction by GP/GP practice and duration

	Conversation structure			Satisfaction by GP			Duration		
	n	r_s	p-value	N	r_s	p-value	n	r_s	p-value
Trust	36	-0.12	0.50	29	-0.04	0.85	36	-0.12	0.48
Familiarity	36	0.08	0.64	29	0.31	0.11	36	0.14	0.43
Confidence towards GP	36	0.53	0.00	29	0.20	0.29	36	0.28	0.10

r_s = Spearman's rho correlation coefficient; GP = General practitioner

DISCUSSION

Main findings

In this mixed-methods study, unique transcripts of 36 telephone conversations between CNs and GP practice professionals were combined with data from questionnaires and focusgroup interviews with CNs. Content analysis revealed the lack of structure during these conversations: CNs often did not start the conversation with a clearly articulated question, provided little relevant background information, and in many cases did not mention the urgency of the phone call. The communication styles of the GPs/GP practice professionals regularly contributed to poor conversation structure. Conversation structure ratings were however relatively high. The CNs' assessed their self-confidence towards GPs fairly high, in contrast with what they expressed in the focus group interviews and demonstrated in the actual conversations. The conversations took 7.9 minutes on average and a broad range of topics were discussed, typically with more complex issues being discussed with GPs and more straightforward topics with PAs. The CN-PA conversations were shorter than the CN-PN and CN-GP conversations, and the shorter conversations were usually better structured. CNs with higher self-confidence towards GPs have better structured conversations. Trust in and familiarity with the GP/GP practice were not associated with better-structured conversations.

Relation to existing literature

The communication structure of phone calls between nurses and physicians was studied once before in a simulated setting [20], which indicated that nurses often failed to provide important background information, although information on the specific situation was provided in most cases. In our study, this phenomenon was confirmed by transcript analysis and GP judgement. Other studies reported that inadequate communication is not simply the result of poor information exchange, but that communication failures are related to hierarchical and interpersonal power differences and conflicts [11, 21]. In the present study, we found indications from both the quantitative and qualitative data that the perceived inequality between the CNs and GPs influenced their communication, and a positive association between CN self-confidence and conversation structure. These findings were supported by a qualitative study [12] in a hospital setting that showed that the use of a protocol to structure communication not only increased the accuracy of decision making, but also helped newly hired nurses to better collaborate with their co-workers and physicians. The development of a communication protocol may therefore be of interest for the primary care setting, in which CNs and GPs are frequently in contact but are often not personally acquainted.

We did not find a significant impact for trust and familiarity on conversation structures, whereas other (mostly qualitative) studies reported that mutual trust and positive interpersonal relations are essential for better collaboration and communication between nurses and physicians [1, 3, 6, 22]. A lack of power and validity of the instruments to measure trust and familiarity in the present study may explain our inability to find similar associations.

Strengths and limitations

This study is unique in obtaining real practice data, which confirmed CN-GP communication experiences previously described in the literature with regard to confidence, communication style and conversation structure. The strengths of this study include a careful registration of the telephone conversations and independent appraisal of its content. Conversation data were supplemented with CN's reflections on these data, obtained through focus group interviews. Quantitative data and qualitative data were consistent on important subjects such as confidence and structure. We faced however substantial practical challenges. The CNs appeared to be inexperienced in data collection for research and some CNs expressed anxiety about recording their conversations. This might have resulted in the under-representation of nurses that felt insecure or had low self-confidence towards GPs. The results of this study may also suffer from additional selection bias caused by a fear of technical and privacy issues among the CNs due to their unfamiliarity with IVR audio recordings. Another limitation is that the 'Conversation structure' and 'Confidence towards GP' measurements lack a psychometric evaluation. In both measures, scores are relatively high, whereas qualitative findings of conversation transcripts and focusgroup interviews show the opposite, which may indicate the lower validity of these instruments or the need for further exploration and understanding of the underlying concepts. The discriminative characteristics comprising the 'Satisfaction by GP' scores may be insufficient because of a ceiling effect, since the participating GPs, PNs and PAs were relatively content with the communication of the nurses. These findings contrast with recent qualitative research that revealed that GPs are often discontent about their conversations with CNs however [9]. Finally, this study's small sample size may limit the generalizability of its results.

Implications for clinical practice, education and research

This study provided valuable information for the development of future interventions aimed at improving communication in primary care practice. We identified two important leads: the improvement of conversation structure and increasing the self-confidence of the CNs. Both of these factors may be improved by the development and use of a communication protocol [12, 23]. Training in the use of such protocols may enhance CN communication skills and empower them in their communication approach towards GPs. Structuring their conversations might lead to the more adequate transfer of information, improved efficiency, and enhanced GP perceptions of nurse capabilities.

As our study revealed, communication is a two-way interaction and GPs could also benefit from communication skills training. In daily practice, interprofessional communication could be enhanced by more frequently holding face-to-face meetings, during which it is easier to develop mutual trust and respect [24]. Moreover, communication training in an interprofessional setting focusing not only on communication skills, but also on differences in hierarchical positions, the mutual perspectives of the roles of nurses and doctors, and their differing work situations could further improve nurse-doctor communication [4, 22, 25].

We recommend that future explorative studies are performed to address communication in primary care, preferably with larger samples. These studies should also include more determinants that may influence nurses' self-efficacy in communication, such as their levels of education, gender differences, and prior experiences. Instruments to measure conversation structure and self-confidence need validation and discrepancy between qualitative and quantitative data on these topics require further exploration. Next, the effects of using a communication protocol should be (pilot) tested, and the sensitivity of the relevant outcome measures to change should be validated.

CONCLUSION

Explorative analysis of actual telephone conversations between CNs and GPs/GP practices revealed that these conversations often lack structure and that CNs regularly lack self-confidence while communicating with GPs. Shorter conversations were typically better structured. CNs with higher self-confidence towards GPs have more structured conversations. Since both these factors may be improved by the use of structured communication tools, such tools may improve communication among these key primary care professionals.

Ethical approval and consent to participate

According to the local ethical committee, this study could be carried out without formal ethical approval (File number CMO: 2016-2604). The participants (CNs) provided written consent before the start of the conversation-recording periods and oral consent before each focus group interview. Patients who were the subjects of the conversations were informed about the study by the CNs via a letter and each patient gave permission to be included, which was registered in their CN's electronic patient record. The GPs/GP practices were informed using a letter and provided oral consent before each recording. A cooperation agreement between the University (blinded) and Telecats, a Dutch firm that provided the IVR technology, stated all of the privacy regulations for patients, CNs, and GPs/GP practices. This study thereby conformed to the research code for good medical research conduct and the Dutch law on privacy regulations.

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8.

Summary and discussion

The research studies in this thesis are part of the DementiaNet project, a practice facilitation programme, which has been developed to support the implementation of primary care networks around people with dementia and their informal caregivers. The primary aim of this thesis is the exploration of two preconditions for network collaboration in primary dementia care: the role of network clinical (nursing) leadership and interprofessional communication between general practitioners and community nurses. Additionally, the development and evaluation of DementiaNet are described.

SUMMARY OF THE MAIN FINDINGS

Chapter 2 provides an outline of the complexity of delivering primary care to patients with dementia. In this chapter, DementiaNet's core elements were clarified: local network-based care, clinical leadership, quality improvement cycles and interprofessional practice-based training. The DementiaNet approach is aimed at reducing the burden of the disease on individuals, healthcare services and society. Additionally, we explained which steps were followed to warrant a tailor-made intervention, aligned with the local situation: step 1) recruitment of the network leader, step 2) formation of the local network, and step 3) annual self-assessment and improvement plan, including interprofessional training.

Chapter 3 describes the overall study design of DementiaNet's evaluation: a longitudinal, mixed methods, multiple case study, in which this thesis' research is embedded. The study population consisted of local DementiaNet networks of primary care professionals. At the start and after 12 and 24 months, quantitative data were collected for each network and we assessed changes in networks over time and the association with quality of care. Throughout the study, logs about each network and network leaders were registered. Additionally, semi-structured interviews with network leaders and network participants provided insight into experiences and opinions regarding effects and mechanisms through which changes in quantitative outcomes could be explained. At the end of this chapter, the main findings of the overall study are summarized. Time trends in network maturity and quality of care indicators showed overall improvements: the networks showed an average yearly increase of 2.03 (95% CI 1.20-2.96) on network maturity and 8.45 (95% CI 2.80-14.69) on quality indicator sum scores. Factors enabling the transition to network-based care were identified including strong and adequate leadership, high involvement of motivated primary care physicians, high acquaintanceship with other network participants, and a network that operates in a relatively small geographical area. Participating professionals reported more personal contact, more coordination, better communication and the network-based care contributed to more mutual respect and trust.

Chapter 4 reviews the literature on the relationship between clinical leadership and integrated primary care, on important leadership skills, and on what is already known about the effectiveness of programs to support network leadership. We searched for publications on PubMed, CINAHL, Embase, PsycINFO up until June 2018. 3207 articles were identified, 56 were selected based upon abstract and title, and

20 articles met the inclusion criteria. Selected papers were of mediocre quality. Two non-controlled studies suggested that leadership support programmes may help prepare and support leaders and may contribute to the implementation of integrated primary care. There was little support that leaders positively influence implementation of integrated care. Leaders' relational, organizational, process-management and change-management skills were considered important to improve care integration. Physicians were mentioned most often as the preferred leaders. We concluded that profound knowledge is needed about the leadership skills that are required for integrated-care implementation, and about effective leadership support aimed at developing these skills. In the DementiaNet approach, support of network leaders is essential and one of the core processes. Based upon the results of the systematic review, we developed a clinical network leadership training programme.

In **Chapter 5** we evaluated this DementiaNet leadership programme's attribution to perceived leadership behavior. Next to that, we explored primary care professionals' experiences with network leadership in the network practice. Twenty-six primary care professionals from three different disciplines (22 nurses, two general practitioners and two occupational therapists) followed the programme. Leadership behavior according to measurements on the Leadership Practice Inventory improved during the second year of training. At the start of the programme, leaders appeared to be relatively unaware of the challenges of network leadership. Learning goals were mainly aimed at personal leadership competences. Network leaders perceived both individual coaching sessions and the group training sessions as fruitful support. The DementiaNet practice-based leadership training, including individual coaching, group sessions and a practice learning environment is a promising programme: it was positively valued by the network leaders and leaders increased their perceived leadership competencies. We advocated further implementation and evaluation of similar multifaceted leadership support programmes in primary care networks to generate a firm evidence base.

In **Chapter 6** we addressed interprofessional communication and focused on patient related communication between general practitioners and community nurses, both key professions in primary care. We explored this communication to identify facilitating and hindering factors and strategies to enhance this communication. We organized six mono-professional focus group interviews: three meetings of 13 general practitioners, and three meetings of 18 community nurses. Content analysis of the transcripts showed that, despite the regular contact between general practitioners and community nurses, communication was generally perceived as inadequate by both professions. Both general practitioners and community nurses considered mutual trust as the most important facilitating factor for effective communication. Profession-specific factors (e.g., differences in responsibility and profession-specific language) and organizational factors (e.g., lack of shared care plans, no personal contact, lack of time) negatively influenced communication. Participants' suggestions for improvement included organizing well-structured and reimbursed team meetings and facilitating face-to-face contact in general. We concluded that inter-professional training programmes should address both professional and organizational factors, and should be evaluated for their effect on the quality of care.

Chapter 7 explores general practitioner-community nurse communication in-depth by studying its content, structure and style, as well as quality driving factors of actual communication. We quantitatively appraised and qualitative analyzed the content of taped telephone conversations and combined this with group interviews with community nurses. Telephone calls of community nurses with the general practitioners' practice were tape recorded, anonymized, and transcribed verbatim. Community nurses indicated their self-efficacy towards general practitioners at baseline, and rated trust in and familiarity with the general practitioner after each conversation. General practitioners rated their satisfaction with the conversations. The structure of communication was assessed and group interviews were recorded and transcribed verbatim. Correlations between these determinants were calculated using Spearman's correlation coefficient. Thematic analysis was applied to transcripts of conversations and focus group interviews. Twenty-six community nurses recorded 36 conversations. Conversation duration with was mean 8.8 minutes (SD 3.99) with doctors and mean 9.7 minutes with Practice Nurses (SD 6.69) and differed in length from conversations with Practice Assistants (mean 3.6 SD 0.69, p=0.004). Shorter conversations were better structured (r_s=-0.42*, p=0.01*). Nurses with high self-confidence towards doctors communicated in a more structured way *(*r_s*=0.53, p=0.001)*. Qualitative analysis showed that many conversations lacked structure and conciseness, i.e. nurses generally started conversations without a clearly articulated question and did not provide adequate background information. This exploratory study of nurse-doctor communication in primary care revealed communication structure and nurses' self-confidence in communication with doctors as favorable targets for improvement of inter-professional communication, which may increase the effectiveness of interprofessional collaboration.

GENERAL DISCUSSION

This general discussion starts with a reflection on the results of the two main themes of this thesis: clinical leadership and interprofessional communication, by putting our findings into a broader context. Subsequently, we will analyze a 'brilliant failure' project, that we intended to conduct as part of this thesis and the lessons learned are considered. Then, methodological and scientific issues are discussed and finally, implications for education and practice are provided.

Clinical leadership in the context of integrated care

Providing clinical leadership support training in the integrated primary care context is relevant and timely. Richter's evaluation study into the effectiveness of the DementiaNet innovation revealed that adequate clinical leadership is an important prerequisite for the formation and well-functioning of DementiaNet-networks [1]. In this thesis we aimed to understand, within real practice conditions, how clinical leadership influences practice improvement and how leadership is perceived by primary care professionals [2]. We found that leaders do have a positive impact on practice improvement, although leadership is currently practiced only at a fairly basic level. Remarkably, our study reveals that medical and nursing professionals perceive clinical leadership as being an unclear concept. These professionals proved to be unsure of what clinical leadership entails and which tasks should be performed.

The Dutch medical and nursing professional associations pay considerable attention to clinical leadership and their members are being engaged and supported in this role. After all, clinical leadership is a relevant subject because there are preliminary results that suggest that it positively influences patient outcomes [3]. Several leadership programmes aimed at professionalizing medical and nursing professionals in clinical leadership roles are currently available. Additionally, in the Netherlands, new books have been published on this subject [4], new websites have been launched [5, 6] and new clinical leadership styles have been developed [7]. Until now, these leadership programmes have reached only a small group of professionals and it is still challenging to implement clinical leadership concepts into practice [8]. Consequently, in general practice on average a clear vision is still lacking of which leadership skills are required in an integrated care setting.

In this thesis, we empirically developed a summary of skills that leaders require, based on opinions and experiences of primary care professionals. The training and coaching of these specific networked care leadership skills were incorporated in the DementiaNet leadership support program and as far as we know, we were the first to design a structured clinical leadership support programme that transcends the micro-level of care (i.e. the care coordinator role) towards the meso-level.

Given the predicted increase of people with complex diseases such as dementia, we would recommend that the medical and nursing professional organizations will expand their leadership programs with education modules on interprofessional competencies and relational, organizational, process-management and change-management skills. The complexity of multimorbidity and chronic care in frail older subjects requires it. Naturally, the same recommendation applies to the nursing and medical vocational education programmes.

There is a considerable group of primary care professionals who are potentially suited to perform leadership roles in a networked setting. In the DementiaNet-networks mostly nurses claimed this role and were able to learn leadership skills and to grow into a network leadership role. GPs showed less ambition and eagerness, but highly appreciated other professionals' initiatives. Notably, our study showed that nurse leaders flourished particularly in pairs. Joint-leadership probably gave them the opportunity to support each other and divide responsibilities. We would argue that especially in a networked setting, nurses may have the ideal profile for leadership. We experienced that nurses do not easily pose a threat to other professionals. They are able to create a safe space that is required to build trusting relationships, which are crucial for interprofessional collaboration [9]. They may feel more at ease with shared and connecting leadership roles, both leadership styles that are appropriate in an integrated care setting [8, 10]. From the evaluation of the DementiaNet leadership program it appeared that internalizing the leadership role, learning the corresponding skills, and applying them in practice takes at least two years (Chapter 5). Prior leadership experience did not seem to lead to faster improvement, although experienced professionals had higher self-perceived competencies scores. Perhaps this is caused by the relative novelty of explicit clinical leadership roles within an integrated setting, and the fact that these roles are considerable different in comparison with leadership - e.g. management – within an organization. We concluded that nurses are able to internalize clinical leadership roles in a network-based primary care context, provided that tasks and responsibilities were made clear and required competences were properly trained.

Interprofessional communication in primary care

This thesis also showed that in primary care, beyond the context of networked care, professional and organizational conditions for adequate interprofessional communication are poor. For example, differences in communication style (unstructured-structured), unequal power balance between nurses and doctors and the presence of many part-time working employees hamper communication.
Improving this communication solely by implementation of networked care may be a rather inefficient way. We learned that it takes at least a year to arrange local networked care, that provides adequate conditions for interprofessional communication (Chapter 5). Many professionals do not participate in networked care, as preconditions are often not in place. Government policy still stimulates regulated competition between healthcare organizations which generates large numbers of small organizations operating in one service area that do not stimulate collaboration within networks [11].

The exploration of the actual communication between community nurse and general practitioner (Chapters 6 and 7) gave us insight in more straightforward solutions for insufficient communication, which can be applied without the availability of a networked setting. In this thesis, we recommended the use of communication protocols accompanied by interprofessional communication training as a promising strategy and its effectiveness should be tested through further research. Other possible strategies should focus on the development of mutual trust. We concluded that trust is an essential component underlying interprofessional communication and this is substantiated with a considerable amount of literature [12]. To build trusting relationships it is crucial to stimulate opportunities for mutual acquaintanceship, such as interprofessional training sessions and meetings to develop understanding of each other's ethical values, tasks and competencies. But other, less conventional strategies may be of interest too, such as organizing sociable activities, e.g. joint exercise, drinks or dinners with the network participants. This should ultimately result in a practice situation in which professionals have a variety of strategies and tools to their disposal to that help to gain interprofessional trust.

Empowerment of community nurses may be another effective strategy. We concluded that nurses with higher self-esteem towards doctors communicated in a more structured way and subsequently conversations were shorter. We would recommend that within nursing organizations, clinical leaders are installed who will play a catalyzing role in empowering colleague nurses. Earlier studies recommended nurses in the role as opinion leader [13] to help implementing new knowledge in practice, next to middle management nurses with a reflective and inquisitive nature and a scientific disposition, who will support transition towards CNs' further empowerment and professionalization [14]. Dutch Government policy has been aimed at supporting and promoting this transition process. The Visible Link-programme was aimed to enhance relational coordination between community nurses and other primary care professionals and showed a positive impact on the delivery of care to community-dwelling frail elderly [15]. The Ambassador-Programme's goal is to enhance leadership in community nurses at the client-, organizational-, community- and society level. Recent evaluation showed that the latter program has a positive impact on nurse professionalization and they are more able to connect practice with healthcare policy. However, the Ambassador-Program's impact on interprofessional care has not been included in their evaluation-study [16]. In 2018, a framework for quality of care for community nursing has been issued in which essential competences, quality care and organizational conditions are agreed upon [17]. Notably, in this report, the connecting role of community nurses in integrated care networks is emphasized again.

Challenges in community nurse professionalization

Awareness of these empowerment and leadership programs, combined with the fact that in the Netherlands, community nurses were positioned in the community again by introduction of Buurtzorg-teams from 2007 onwards [18], we expected community nurses to play a dominant role in the development and maintenance of the DementieNet networks. However, these expectations were not completed fulfilled during the implementation and research process. We already depicted the challenges for nurses to advance on clinical leadership and communication competences. Empowerment of nurses is necessary to play a sufficiently equal role towards doctors and other collaborating professionals [9].
A lack of nurses' professionalization is also illustrated by the following example of a study we intended to carry out for this thesis, but which failed. In this project, we aimed to study the effectiveness of the

introduction of a communication protocol for CNs in a Randomized Controlled Trial (The Netherlands National Trial Register; Trial Number 6293). We recruited the CNs via an advertisement in the National Nursing Association's newsletter and via our personal networks. We managed to include the proposed sample of > 80 nurses in a three weeks period of time (98 CNs; n=49 intervention group, n=49 control group). Self-assessment of the self-confidence, while communicating with the GP/ GP practice was the primary outcome measure, which was collected via an online questionnaire of three questions. Additionally, CNs were asked to provide taped recordings of real communication with the GP practice. However, during this study, half of the nurses in both groups ceased participation during the trial and only 12 nurses in the intervention group control and 14 nurses in the control group completed the online post measurement questionnaire. This 73% drop-out rate on the primary outcome made it impossible to come to any conclusions on effectiveness of the communication protocol.

Before and during the trial, we took several measures to increase response rates. We provided extensive information on the goal and design of the study to the nurses beforehand. We offered free communication training, also to the control group after the trial ended. Initially, we were pleased that the including process was successful, and we argued that we had understood the nurses' ambition need to improve on interprofessional communication. Soon after the start of the trial, however, the participation fell behind, especially in the phase when nurses were asked to audiotape their communication with the GP. We intervened by sending weekly reminders and telephone calls were made to stimulate the CNs to participate in the measurements. However, when the first training sessions began, half of the nurses had already dropped out, sometimes without giving any notice. When asked, nurses indicated that 'lack of time' and 'personal circumstances' were the main drop-out reasons.

In our research team, we argued that there may have been other reasons for this extreme attrition too. Perhaps, the nurses were keen to participate in the free training, but did not oversee the consequences of the measurements, when they consented to participate in the study. Or maybe they believed the training to be effective beforehand and were not especially interested in the underpinning of this intervention with evidence. We experienced that nurses' responding to emails or telephone calls was poor. In fact, it seemed that they did not read the emails at all. Therefore, also our attempts to clarify the reasons for attrition failed.

This difficult communication led us to the conclusion that that studying communication in real practice situation was not easy. Of course, we ourselves learned lessons from this 'brilliant failure'-trial. We could have more accurately anticipated on the nurses' behavior by being more exclusive in the inclusion phase and insisting on commitment to the study protocol, for example by involving the nurses' management. Also, we should have piloted the voice recording of the communication and its consequences more intensely. In the end, we were disappointed that the request to answer a 10-items online questionnaire was apparently too much to ask. We concluded that we had poorly understood the attitude of CNs to participate in this scientific research and perhaps we somewhat overrated their levels of professionalization in relation to Evidence Based Practice (EBP).

Although nurses in general believe that EBP plays a pivotal role in improving care quality and patient outcomes, there is serious doubt among researchers whether nurses are sufficiently ‘ready’ for EBP [19]. Nurses are known for low levels of participation in studies [20] and nurses in general perceive their own knowledge and skill in EBP as insufficient despite their positive attitudes toward EBP [19]. The low levels of participation of nurses in our study may reflect what we consider a negative attitude of CNs to scientific research and EBP. However, to substantiate this statement and to understand what had happened, we reflected on this ‘brilliant failure research’ [21] together with a focus group of seven community nurses, after the trial was finished. These nurses reported several plausible causes and barriers why we failed to gather enough data to finish this study. They mentioned organizational barriers such as insufficient time and non-commitment of management and professional barriers, for example CNs’ lack of knowledge and skills on EBP. But most of all they emphasized that nurses probably lacked motivation because they do not experience added value of research projects.

The same organizational and professional barriers were reported previously in literature [19, 22, 23] as well as opposition to undertake and participate in research [24] and resistance to change in general [25, 26]. However, in the Dutch primary care setting, researchers may be more dependent on nurses intrinsic motivation, as nursing management is increasingly at a distance [27]. Next to that, growing privacy issues, due to new legislation [28], may discourage professionals to participate in research projects and raise new barriers for research in a real practice situation.

Alongside organizational and professional barriers, personal barriers may play an important role in EBP readiness and professionalization. We would argue that trust-distrust and self-confidence are key-concepts within these personal barriers: distrust in the added value of research, trust and self-confidence as essential components underlying interprofessional communication. Perhaps (low levels of) of self-confidence are also the underlying trait of nurses’ attitude towards EBP and professionalization.

Fortunately, opportunities for advancing the community nurses in a catalyzing role by connecting practice with research are ample available at the moment. Firstly, the recent evaluation of the ‘ambassadors’-track. The ambassador-nurses were able to connect nursing practice with policy and politics. Connecting practice with research should follow and could easily be integrated in the leadership program [16]. And secondly, the Dutch nursing association, V&VN, has recently formulated a research–agenda to guide future community nursing research to secure evidence-based practice [29].

Methodological considerations and recommendations for research

Methodological issues also played a role in studying leadership and communication in practice. In real practice situations, researchers have to deal with complex practice environments, which are necessarily tightly connected to the interventions. Consequently, the opportunity for applying controlled designs, let alone a randomized trial, is difficult to realize in real practice situation. Evaluation of the context, in which the interventions take place, and studying the change mechanisms and drivers for uptake of interventions should accompany implementation research [2]. This requires piloting beforehand and a carefully prepared process evaluation study linked to the study.

Achieving valid results is another issue when researchers are participating in the intervention itself, as this was the case in the leadership program. Careful logging of observations and creating feedback for researchers themselves are ways to increase the validity of this kind of action research [30]. Action research is gradually gaining more interest. It's advantages, to provide co-developing with actors and to enhance sustainability of change, are noticed. Important research funders in health care, such as ZonMw, at first, rather conservative and hesitant to embrace these research methods, make action research possible in recent research calls. Action research is an appropriate method to study context, change mechanism and drivers for implementation of interventions [31].

Another complicated issue was that well-developed instruments to measure specific aspects of integrated care are lacking. In the leadership program evaluation, leadership behavior measurement tools are mainly based on self-assessment and tools specifically focused on leadership in an integrated setting are not available yet. The last few years, numerous tools to measure interprofessional collaboration became available, although most instruments are based on self-assessment and only few assess collaborative behavior in real practice settings [32, 33].

Although these barriers exist, we plead for more leadership research, especially as leadership appeared to be essential for networked care [34, 35]. Useful future research topics concern the development and validation of leadership measurement tools based on connecting leadership styles. Additionally, we recommend to study, which professionals in terms of professional background and personality profit most from leadership support, to be able to target interventions on the most promising professional groups. Then, leadership support programs aimed at these groups should be developed and linked to integrated care implementation, in which these results can be incorporated and tested.

As to future research related to interprofessional communication, this should be aimed at further exploring communication and its influencing factors. We found for example that trust, knowing each other personally, and improved communication structure contributed to interprofessional communication. Age, gender, cultural background and the perception of competences of colleague with different professional backgrounds should be further taken into account. Besides the influence of communication facilitators such as social media, web-based communities and interprofessional education are important to investigate [36].

Finally, the community nurses that participated in our 'brilliant failure focus group interview' provided us with some valuable recommendations to be taken into account in future practice research with nurses: a) researchers should be sensitive for the particularities of the field of research and have to provide beforehand a clear explanation for the importance of participation in the study and what results can be expected; b) when nurses are involved, it is recommended to create support and conditions (time or financial reimbursement) from nursing management in advance; c) results of studies should be made available much sooner and d) should be articulated in a way that makes the significance for the individual patient very clear.

In conclusion, zooming in on two preconditions for network collaboration in primary dementia care helped us to gain more insight into how these aspects could be improved. We appeal for further evaluation of these two, but also plead to study the different dimensions of integrated primary care networks, which are described in the Rainbow Model for Integrated Care. It is encouraging for researchers and practitioners that the Dutch Government has recently ordered ZonMw to issue support grants for local primary care networks aimed at improving the care for frail elderly and people with dementia. Networks that apply for these grants have to include action research methodology to accompany their actions. This good initiative in itself should be followed by sound evaluation of the merits of these implementation projects.

Recommendations for education

Caring for complex patient groups in an interprofessional context requires interprofessional collaboration skills and these skills should be trained from scratch. We recommend that nursing and medical students are trained interprofessionally on two levels. Firstly, the clinical level including to learn how to provide care according to a shared care plan with an interprofessional team, including adequate interprofessional communication. This demands insight in each different disciplines' domains, to be able to explicate your professional competences and responsibilities, to respect each other's expertise and to overcome organizational and professional boundaries [37, 38, 39]. Secondly: the leadership level should include managing interests of different network participants, towards sharing passion, and bringing vision and ethical values into the inter-professional team, which should be engaging and convincing for other professionals for common goals and effectively deal with conflicts [40, 41].

Another recommendation concerns the nursing and medical educators. Interprofessional education needs a different teaching approach, and interprofessional educators, especially those who lack interprofessional experience, should be trained, as well to acquire an adequate set of teaching skills [42].

Recommendations for clinical practice

To advance interprofessional collaboration in practice, we would recommend investing in the development of collaborative and leadership skills in professionals already working in practice via the DementiaNet approach. This workplace training approach is applicable not only for practitioners in dementia care networks, but also for networks with a broader scope or target population. The momentum is now, as opportunities are available and organizations and existent networks may use the governmental supports (grants for network building) and take into account the lessons we learned about the success factors for development of primary care networks. Community nursing organizations should invest in clinical leadership development and provide their nursing staff with clear descriptions of what this role entails. These organizations should make ample use of their own role models: nurses that already give the good example. Give them room and use their experiences to inspire their colleagues. Next to that, when recruiting (nursing) staff, selection on clinical leadership skills, next to pure clinical competencies, may be a fruitful strategy.

Supply the nurses that are willing to take up these roles with training and coaching when needed. After all, training programs are available (DementiaNet and Ambassador). In doing so, organizations will be simultaneously putting the agreements that are stipulated in the "Quality Framework of Community Nursing" into practice, just as recommendations recently presented to the Dutch Institute of Care (www.zorginstituutnederland.nl)[43].

Conclusion

In this thesis, we researched possible useful strategies for integrated primary (dementia) care to support both clinical leadership and interprofessional communication. These strategies should be further researched and spread. To tackle the challenges for delivering integrated care for complex patient groups in primary care, the Rainbow Model for Integrated Care could be used, as it is a suitable framework to plan a multi strategy-policy on the macro-, meso- and micro-level. On the micro-level relevant preconditions are support of clinical leadership, facilitation of professionals in interprofessional collaboration and communication, and empowerment of community nurses. At the meso-level, organizations and their management should provide ample support for their practitioners to invest in collaboration, communication and leadership. On the macro-level, the Government should undertake action to bring down the number of local organizations and provide incentives and financial support for a really collaborative practice. Our research fueled the idea that in the end, developing networked primary care is like making a jigsaw puzzle: when the pieces finally fit together, the result is very rewarding.

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9.

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NEDERLANDSE SAMENVATTING

Inleiding

Bij de zorg aan thuiswonende mensen met dementie en hun mantelzorgers zijn veel verschillende professionals betrokken, zoals de huisarts, wijkverpleegkundigen, thuiszorg, welzijnswerk, ergotherapie en fysiotherapie; samen vormen zij de eerstelijns zorg. Goede samenwerking en communicatie tussen deze eerstelijns professionals is nodig om kwalitatief goede en afgestemde zorg te bieden. In de komende jaren zal in Nederland het aantal ouderen toenemen en daarmee ook het aantal mensen met een dementie. Nu al lijden naar schatting 270.000 mensen aan dementie en dit heeft een grote invloed op het gezondheidszorgsysteem en de zorgkosten. Het overheidsbeleid is er op gericht om mensen met dementie, met hulp van mantelzorg, andere informele zorgverleners en eerstelijns professionals zo lang mogelijk thuis te laten wonen, om daarmee de zorgkosten te beperken.

Hoofdstuk 1

Mensen met dementie hebben vaak te maken met verschillende, vaak complexe problemen: geheugenstoornissen die gepaard gaan met de achteruitgang van andere mentale functies zoals herkenning, inzicht, taalgebruik en gericht handelen. Dit veroorzaakt problemen in het dagelijks functioneren en gedragsproblematiek, waardoor hulp en ondersteuning noodzakelijk is. Een groot deel daarvan wordt door mantelzorg (familie en vrienden) geboden. Er wordt vooral een groot beroep gedaan op mantelzorgers, die vaak overbelast zijn en daarom ook ondersteuning en begeleiding nodig hebben. De complexiteit van deze problemen vraagt veel van de eerstelijnszorgverleners. Zij staan voor de uitdaging om op een geïntegreerde wijze deze zorg en ondersteuning te bieden.

De Nederlandse overheid heeft via diverse, elkaar opvolgende programma’s, in de periode van 2004 tot heden, pogingen ondernomen om de integratie van de zorg aan deze kwetsbare groep ouderen en hun mantelzorgers te verbeteren. Desondanks worden nog steeds onvolkomenheden gemeld: gebrek aan coördinatie en communicatie op lokaal niveau; zorg die te weinig is afgestemd op de doelen van de patiënt; onvoldoende toegang tot gespecialiseerde kennis; en professionals die te weinig gebruik maken van zorgstandaarden en richtlijnen.

Dit proefschrift beschrijft een innovatieve netwerkaanpak ‘DementieNet’ die erop gericht is om professionals te ondersteunen bij het oplossen van met de hierboven geschetste problemen. Met het introduceren van deze aanpak willen we een transitie op gang brengen naar betere samenwerking, betere kwaliteit van zorg en betere patiënt uitkomsten. We hebben deze innovatie gekoppeld aan een grondige evaluatie. Het eerste deel van de evaluatie, een meervoudig casusonderzoek, waarbij ieder netwerk als een casus gedetailleerd wordt gevolgd, is inmiddels afgerond. Het tweede deel loopt nog door tot 2022. Om tot een beter begrip te komen van integrale zorg in lokale netwerken, leggen we in dit proefschrift de nadruk op twee aspecten van deze interprofessionele samenwerking, namelijk 1) het nut van netwerkleiderschap en 2) interprofessionele communicatie.

In dit proefschrift wordt als eerste een beschrijving gegeven van de DementieNet aanpak en de globale evaluatie. Vervolgens is het doel van dit proefschrift om netwerkleiderschap en interprofessionele samenwerking exploratief te onderzoeken. We willen meer zicht krijgen op de invloed van netwerkleiderschap op geïntegreerde eerstelijnszorg en hoe daadwerkelijk de interprofessionele communicatie verloopt tussen wijkverpleegkundigen en huisartsen, professionals die gezien worden als de belangrijkste tandem in de eerstelijnszorg. In het proefschrift hebben we speciale aandacht voor de rol van de wijkverpleegkundigen in deze processen.

Hoofdstuk 2

Dit hoofdstuk beschrijft waarom DementieNet is ontwikkeld en hoe het programma eruit ziet. Herontwerp van de eerstelijnszorg voor thuiswonende mensen met dementie is nodig omdat er in Nederland veel ad hoc samenwerking is. Daarnaast wordt er geen feedback gegeven aan eerstelijns professionals op de kwaliteit van de dementiezorg die zij leveren. Het doel van het DementieNet programma is om interprofessionele samenwerking te helpen organiseren, om daarmee de belasting van dementie te verkleinen op patiënten, hun mantelzorgers, de betrokken zorgprofessionals en de organisaties waarin ze werken. De DementieNet aanpak bestaat uit de volgende elementen: het stimuleren van lokale samenwerking, het ondersteunen van netwerkleiders, het stimuleren om Plan-Do-Check Act (PDCA)-verbetercycli te doorlopen en het vergroten van kennis en vaardigheden via interprofessionele training. DementieNet volgt een *op maat* aanpak die aansluit bij de lokale situatie, waarbij de volgende stappen successievelijk worden gevolgd: 1) het werven van een netwerkleider; 2) het identificeren van de lokale netwerkparticipanten en bouwen aan een gestructureerde netwerksamenwerking; 3) het bij start (en vervolgens jaarlijks) verzamelen van kwaliteitsfeedback, het selecteren van verbeterpunten en het opstellen van compacte verbeterplannen; 4) het interprofessioneel trainen op thema's, die aansluiten bij de verbeterplannen. Evaluatieonderzoek heeft de effecten en de bevorderende en belemmerende factoren van deze zorginnovatie geëvalueerd (zie hoofdstuk 3).

Hoofdstuk 3

Dit hoofdstuk geeft een beschrijving van het evaluatieonderzoek via een langer lopend onderzoek, waarin dementienetten als eenheid van onderzoek elk voor zich worden gevolgd. Dat doen we zowel beschrijvend (kwalitatief) als in maat en getal (kwantitatief). De studiepopulatie omvatte lokale netwerken van eerstelijns professionals. Gegevens werden verzameld bij start en na één en twee jaar follow-up en omvatten zoals gezegd zowel kwantitatieve (kwaliteit van zorg, mate van netwerkintegratie) als kwalitatieve data (interviews met zorgverleners en mantelzorgers en logs van de netwerken). Veranderingen in de netwerken werden geëvalueerd en associaties tussen uitkomstmaten onderzocht. Integratie van kwantitatieve en kwalitatieve data vond plaats om de netto effecten en de werkingsmechanismen te identificeren en inzicht te krijgen in hoe deze elkaar beïnvloeden.

De wetenschappelijke evaluatie van de effecten van de eerste dertien netwerken, die aan het programma zijn begonnen, liet zien dat over het geheel genomen de netwerken een gemiddelde jaarlijkse groei hadden van 2,0 (95% CI 1,2 - 3,0) op de mate van netwerkintegratie en 8,5 (95% CI 2,8 - 14,7) op de somscore van de kwaliteitsindicatoren. Factoren die bijdroegen aan de transitie naar beter geïntegreerde netwerken waren: adequaat leiderschap, een actieve bijdrage van gemotiveerde huisartsen, netwerkparticipanten die elkaar goed kennen en een netwerk dat in een relatief kleine geografische omgeving is gelokaliseerd. Deelnemende professionals ervaarden meer persoonlijk contact, betere coördinatie, betere communicatie en de DementieNet aanpak droeg bij aan wederzijds respect en vertrouwen.

Hoofdstuk 4

In de DementieNet aanpak is het ondersteunen van netwerkleiders één van de basiselementen. Leiderschap wordt namelijk gezien als essentieel voor implementatie en uitvoering van geïntegreerde zorgmodellen. Toch blijkt de wetenschappelijke basis hiervoor onduidelijk. Dit hoofdstuk beschrijft een review naar de relatie tussen klinisch leiderschap en geïntegreerde eerstelijns zorgmodellen, naar benodigde leiderschapsvaardigheden en naar effectieve ondersteuningsprogramma's voor klinisch leiderschap. Via een systematische review, waarbij gezocht werd in vier elektronische databases (Pubmed, CINAHL, Embase en PsycINFO) naar studies die uitgevoerd zijn in een geïntegreerde eerstelijns setting, werden 3207 artikelen gevonden. 56 werden geselecteerd op basis van titel en samenvatting en uiteindelijk beantwoordden 20 studies aan de zoekcriteria. De geselecteerde artikelen waren van matige kwaliteit. Er was weinig onderbouwing te vinden voor de hypothese dat leiders implementatie van geïntegreerde zorg positief beïnvloeden. Twee studies (zonder controlegroep) suggereerden dat leiderschapsprogramma's mogelijke behulpzaam zijn bij het voorbereiden en ondersteunen van professionals op een leiderschapsrol in een geïntegreerde zorgsetting. Ze lieten bovendien zien dat goed leiderschap mogelijk bijdraagt aan de implementatie van geïntegreerde eerstelijns zorg. Uit kwalitatieve studies kwam naar voren dat deze leiders relationele en organisatorische vaardigheden dienen te bezitten en vaardig moeten zijn in procesmanagement en verandermanagement om integratie van zorg te verbeteren. Dokters werden het vaakst werd genoemd als de gewenste leider. We concludeerden dat er nog aanvullende kennis nodig is over leiderschapsvaardigheden die nodig zijn voor implementatie van geïntegreerde zorg en dat de ontwikkeling en evaluatie van effectiviteit van leiderschapsprogramma's nog nader aandacht behoeft. De beperkte opbrengst van deze review werd meegenomen in de ontwikkeling van een netwerkleiderschapsprogramma voor netwerkleiders in DementieNet.

Hoofdstuk 5

Het tweejarige DementieNet-netwerkleiderschapsprogramma bestaat uit individuele coaching, groepsbijeenkomsten en het bieden van een praktijkomgeving waarin geoefend kan worden. Het programma werd geëvalueerd op de bijdrage van het programma aan het zelf-ervaren leiderschapsgedrag van de eerstelijnsprofessionals die een netwerkleidersrol vervulden. Daarnaast onderzochten we in individuele en groepsinterviews wat eerstelijns professionals ervaarden bij het uitvoeren van hun netwerkleidersrol in de lokale DementieNet-netwerken. Zesentwintig eerstelijns professionals vanuit drie verschillende disciplines (22 verpleegkundigen, twee huisartsen en twee ergotherapeuten) volgden het programma. Zelf gerapporteerd leiderschapsgedrag werd gemeten met de Leadership Practices Inventory. Het leiderschapsgedrag verbeterde gedurende het tweede jaar van het programma. Bij de start van het programma bleek dat de leiders redelijk onwetend waren over welke uitdagingen de netwerkleiderschapsrol met zich mee bracht. De leerdoelen die de netwerkleiders opstelden, waren het vaakst gericht op het behalen van verbetering op persoonlijke leiderschapscompetenties. De netwerkleiders vonden zowel de individuele coaching en de groepstraining nuttig voor hun ontwikkeling. We concludeerden dat het DementieNet netwerkleiderschapsprogramma positief werd gewaardeerd door de netwerkleiders en dat het programma bijdroeg aan verbetering van het zelf ervaren leiderschapsgedrag en daarom een programma is met potentie. We vinden het belangrijk dat er meer implementatie en evaluatie plaatsvindt van vergelijkbare veelzijdige leiderschapsprogramma's in eerstelijns netwerken, zodat er een stevige onderbouwing komt voor het effect van leiderschapsondersteuning op leiderschapsgedrag in een geïntegreerde zorgsetting.

Hoofdstuk 6

Huisartsen en wijkverpleegkundigen vormen een belangrijke tandem in de eerstelijns zorg. Het groeiende aantal ouderen met complexe problemen noopt deze professionals om intensiever met elkaar samen te werken. Echter, de communicatie tussen huisartsen en wijkverpleegkundigen verloopt vaak problematisch en er is nog weinig onderzoek gedaan naar welke factoren deze communicatie beïnvloeden in de eerstelijns setting. Dit kwalitatieve onderzoek identificeerde deze factoren door in focusgroepen van huisartsen en wijkverpleegkundigen te bespreken wat er speelt in de praktijk.

We organiseerden zes mono-professionele focusgroep interviews: drie bijeenkomsten met 13 huisartsen en drie bijeenkomsten met 18 wijkverpleegkundigen. Inhoudsanalyse van de transcripten van de interviews laten zien dat zowel huisartsen als wijkverpleegkundigen de onderlinge communicatie weinig effectief en efficiënt vinden, ondanks dat ze regelmatige contact hebben met elkaar. Zowel huisartsen als wijkverpleegkundigen beschouwden het onderlinge vertrouwen als de belangrijkste bevorderende factor voor effectieve communicatie. Bepaalde professie gebonden factoren zoals het verschil in verantwoordelijkheid en taalgebruik, en organisatorische factoren zoals gebrek aan een gezamenlijk zorgplan, gebrek aan persoonlijk contact en tijdgebrek beïnvloedden de communicatie negatief. De deelnemende professionals gaven zelf mogelijkheden voor verbeteringen aan, zoals het organiseren van een goed gestructureerd multidisciplinair overleg en zorgen dat er meer persoonlijk contact is.
We concluderen dat het nuttig is dat er interprofessionele trainingsprogramma's worden ontwikkeld, die gericht zijn op onderlinge communicatie en zowel de professionele als de organisatorische aspecten adresseren. We raden aan om deze programma's te evalueren op het effect op de kwaliteit van zorg.

Hoofdstuk 7

Communicatie tussen huisartsen en wijkverpleegkundigen kan winnen aan effectiviteit en efficiëntie, maar inzicht in de inhoud van deze communicatie in de praktijk ontbreekt. We onderzochten de inhoud, structuur, wijze van gespreksvoering en beïnvloedende kwaliteitsfactoren van telefonische gesprekken tussen wijkverpleegkundigen enerzijds en de huisarts/praktijkondersteuner en praktijkassistentes anderzijds. We namen gesprekken op tussen deze disciplines en deze gesprekken werden geanonimiseerd en letterlijk uitgeschreven. Vervolgens gaven we de structuur van elke gespreksopname een kwantitatieve beoordeling en analyseerden de inhoud van de gesprekken kwalitatief. De wijkverpleegkundigen scoorden voor het starten van de opnames hoeveel zelfvertrouwen ze hadden ten opzichte van de huisarts. Ook beoordeelden ze na elk gesprek het vertrouwen in deze specifieke huisarts en hoe goed ze deze huisarts, waarmee het gesprek werd gevoerd, kenden. Huisartsen beoordeelden hun tevredenheid met het gesprek na elk gesprek. We combineerden deze gegevens met de data uit groepsinterviews met wijkverpleegkundigen, die ook werden opgenomen en getranscribeerd.

Correlaties tussen deze determinanten werden berekend met Spearman's correlatie coëfficiënt. Thematische analyse werd toegepast op de transcripten van de gesprekken en de focusgroep interviews. Zesentwintig wijkverpleegkundigen namen 36 gesprekken op. De gesprekken duurden gemiddeld 8,8 minuten (SD 4,0) met huisartsen en gemiddeld 9,7 minuten met praktijkverpleegkundigen (SD 6,7) en dit verschilde significant in lengte met de gesprekken met de praktijkassistentes (gemiddeld 3,6 minuten, SD 0,7; p=0,004). Kortere gesprekken waren beter gestructureerd (r_s=-0,42, p=0,01). Verpleegkundigen met meer zelfvertrouwen ten opzichte van de huisarts communiceerden op een meer gestructureerde wijze *(*r_s*=0,53,* p= 0,001*)*.

Kwalitatieve analyse liet zien dat bij veel gesprekken structuur en bondigheid ontbrak. Verpleegkundigen begonnen het gesprek bijvoorbeeld zonder dat er een duidelijke vraag werd gesteld, of zij gaven te weinig achtergrondinformatie.

Deze exploratieve studie van de communicatie tussen wijkverpleegkundigen en huisartsen in de eerste lijn liet zien dat de structuur van het gesprek en het zelfvertrouwen van de verpleegkundigen ten opzichte van de huisarts gunstige aangrijpingspunten zijn om interprofessionele communicatie te verbeteren, wat mogelijk de effectiviteit van interprofessionele samenwerking ten goede komt.

Hoofdstuk 8

In het laatste hoofdstuk werd gereflecteerd op de resultaten en het verloop van het onderzoek en werd ingegaan op de betekenis van de bevindingen voor onderzoek, onderwijs en praktijk. Het onderzoek maakte duidelijk dat netwerkleiders een positieve invloed hebben op de verbetering van samenwerking in het netwerk, alhoewel de leiderschapsrol op een redelijk basaal niveau werd uitgevoerd en de bijbehorende taken nog als onduidelijk werden ervaren. (Wijk)verpleegkundigen waren in staat waren om een netwerkleiderschapsrol te vervullen, nadat taakverheldering en training op benodigde competenties had plaatsgevonden.
Wat betreft de interprofessionele communicatie tussen wijkverpleegkundigen en huisartsen vonden we dat er in de huidige praktijk veel belemmerende factoren waren, zowel organisatorisch als professioneel,

zoals het feit dat er veel verschillende organisaties zijn die wijkverpleging aanbieden, en verschillen in een communicatiestijl tussen verpleegkundigen en artsen. De belangrijkste bevorderende factor was vertrouwen. De huidige communicatie praktijk liet zien dat wijkverpleegkundigen baat kunnen hebben bij het gebruik van communicatieprotocollen om de structuur van de communicatie te ondersteunen. Ook empowerment van wijkverpleegkundigen in hun zelfvertrouwen ten aanzien van huisartsen zou een effectieve strategie kunnen zijn voor verbetering van deze communicatie.

Naast de professionalisering van wijkverpleegkundigen op het gebied van het leveren van geïntegreerde dementiezorg, ervaarden we tijdens het onderzoek dat de kennis en attitude van wijkverpleegkundigen ten aanzien van Evidence Based werken nog ruimte kent voor verbetering.

Aanbevelingen voor onderzoek

Het doen van onderzoek in de praktijk van alledag bleek uitdagend en gaf ons een beperking om gecontroleerde designs te gebruiken. In dit proefschrift werd daarom hoofdzakelijk gebruik gemaakt van kwalitatieve methodes. Het is daarmee goed gelukt om inzicht te krijgen hoe interprofessionele samenwerking verloopt en welke mechanismen deze praktijk beïnvloeden. Actieonderzoek is aan te bevelen voor toekomstig exploratief praktijkonderzoek, waarbij de context van de praktijksituatie een grote rol speelt, om kennisontwikkeling en implementatie dichter bij elkaar te brengen. De gerandomiseerde studie naar het effect van een training voor wijkverpleegkundigen over structuur in communicatie met de huisarts, die was gepland voor dit proefschrift, is mislukt vanwege het feit dat veel wijkverpleegkundigen tijdens het verloop van de studie uitvielen. Bij toekomstig vergelijkbaar onderzoek in de wijkverpleging is het van belang om 1) het doel van het experiment en het belang voor de individuele cliënt te benadrukken; 2) steun te verwerven van verpleegkundig management en 3) de resultaten van de studie snel te delen met de deelnemers.

Aanbevelingen voor onderwijs

Het zorgen voor complexe kwetsbare groepen in een interprofessionele context vereist dat interprofessionele vaardigheden al in het basiscurriculum van verpleegkundigen en artsen worden meegenomen. Idealiter zou er in het onderwijs aandacht moeten zijn voor twee niveaus. Als eerste, het klinische niveau: hoe werk je samen in een interprofessioneel team/netwerk met een gezamenlijk zorgplan, hoe communiceer je op een adequate manier met elkaar en hoe bouw je aan onderling vertrouwen. Als tweede, op het leiderschapsniveau: hoe kom je binnen het interprofessionele team/netwerk tot een gezamenlijke visie, doelen en ethische waarden, hoe bespreek je de verschillende belangen van professionals, en ga je effectief om met conflicten binnen het team/netwerk.

Aanbevelingen voor praktijk

Er is momenteel veel aandacht voor het ontwikkelen van interprofessionele netwerksamenwerking, als uitingsvorm van integrale zorg en teamontwikkeling. Het beleid van het ministerie van VWS is erop gericht om netwerksamenwerking op gang te brengen. Dat betekent dat de professionals in het veld daarvoor over de benodigde competenties moeten beschikken en deze zo nodig moeten kunnen ontwikkelen. We bevelen organisaties voor wijkverpleging en huisartsenzorg aan dat zij hun medewerkers ondersteunen bij interprofessioneel samenwerken en het uitoefenen van klinisch leiderschapsrollen. Dit kan via training, coaching en het verhelderen van taken en verantwoordelijkheden. Maar ook door meer gebruik te maken van hun koplopers (bijvoorbeeld de ambassadeurs-wijkverpleegkundigen) en het geven van ruimte aan medewerkers die deze leiderschapsrol ambiëren. Ook bij het selecteren van personeel kan hierop worden geanticipeerd.

Concluderend

Bij het ontwikkelen van geïntegreerde dementiezorg via lokale eerstelijnsnetwerken lijken zowel het benutten van netwerkleiderschap als het inzetten en verbeteren van interprofessionele communicatievaardigheden belangrijke strategieën. Voor het ontwikkelen van lokale eerstelijnsnetwerken zijn daarnaast meer onderdelen noodzakelijk. Het bouwen aan netwerk zorg is daarmee goed te vergelijken met het maken van een legpuzzel die bestaat uit veel onderdelen: als de stukken uiteindelijk in elkaar passen, is het resultaat uiterst bevredigend. Verbindingen die je eerst niet kon maken, lijken nu simpel en volstrekt logisch.

DANKWOORD

Het kriebelde al enige tijd … zou ik aan een promotieonderzoek beginnen? Een interview met Hannie van Leeuwen, CDA-politica was één van de triggers. Hannie keek terug op haar carrière en merkte op dat ze het jammer vond dat ze altijd een generalist was gebleven en nooit de tijd had gehad om zich te verdiepen in één onderwerp. Dat raakte een snaar. Toen Marcel Olde Rikkert, hoogleraar Geriatrie mij vroeg of een promotieonderzoek, gekoppeld aan DementieNet, iets voor mij was, was ik al snel om. Verdieping, daar was ik aan toe. Wat was de kern van al die transmurale en netwerkprojecten waar ik al jaren mee bezig was? Ook mijn ervaring als mantelzorger van mijn vader speelde mee, die ik als casus beschrijf in de introductie. De zorg aan thuiswonende mensen met dementie en hun mantelzorgers is nog te versnipperd en dat moet anders. Hoe kunnen we deze zorg verbeteren en ervoor zorgen dat professionals samenwerken om afgestemde zorg te bieden?

Marcel, jij was benieuwd naar de onderzoeksvragen die ik vanuit mijn praktijkervaring zou kiezen. Wat een ruimte, wat een cadeau! Dit gaf me veel positieve energie en die heb ik vastgehouden, vijf jaar lang. Natuurlijk was niet alles even makkelijk. Naast een les in het doen van wetenschappelijk onderzoek, was het ook een persoonlijke les: vooral in het leren incasseren van teleurstellingen en van volhouden. Fijn dat veel mensen me hebben geholpen om dit leerproces goed door te komen en die wil ik hierbij hartelijk bedanken.

Als eerste dank ik mijn promotieteam. Marcel, jij weet de tijdgeest goed te duiden en loopt altijd minstens drie jaar voor de troepen uit. Bij de start van ons project wilde niemand iets van DementieNet weten, maar na vijf jaar hebben we kennis over netwerkzorg ontwikkeld, waar nu in Nederland veel vraag naar is. Ik dank je voor het vertrouwen dat ik voelde gedurende deze jaren, je supersnelle feedback op conceptversies en het zoeken naar oplossingen wanneer er problemen ontstonden. Marjolein, bedankt voor het meedenken met en het promoten van DementieNet in binnen- en buitenland. Rob, bedankt voor je bemoedigende woorden en kritische reflecties op de resultaten en discussies. Marieke, zonder jou was deze promotie niet gelukt. We hebben samen het leeuwendeel van de deelprojecten uitgedacht en jouw ideeën, die ook voortkomen uit de praktijk van alle dag, brachten me weer verder. Jij hebt me erg geholpen met je constructieve feedback en het schrappen van veel lege zinnen!

Dan alle professionals in de DementieNet-wijken, vooral de netwerktrekkers. Bedankt dat jullie je nek uit staken en je als netwerkleider wilde opwerpen, hoewel dit nog een onomschreven rol was. Ik heb veel plezier beleefd aan de coachingsessies en de netwerkbijeenkomsten. Ik merkte dat we met elkaar de ambitie delen om samen de zorg aan mensen met dementie te verbeteren. Ook dank aan alle samenwerkingspartners van het eerste uur: Chantal Hensens van de CIHN/OCE, Fred Wolters van ZZG-zorggroep en Pieter de Boer, Anke van de Werf, Jef Nijssen en Jo Robeerst, die de ervaringskennis van mantelzorgers inbrachten.

Bedankt, alle trainers van onder andere de afdeling Geriatrie en de ZZG-zorggroep: Leny, Maartje, Wendy, Trudy, Jan, Fred en Monique en natuurlijk Jeroen, voor je creatieve inbreng. Met jullie interprofessionele trainingen op locatie gingen jullie door het hele land, van Heerlen tot Urk, om de trainingscomponent van DementieNet een succes te maken. En ook veel dank aan Nora en Joanna, jullie zorgden voor een vlekkeloze organisatie en communicatie.

Bedankt, alle onderzoekers bij de afdeling Geriatrie die in de afgelopen jaren mijn collega's waren. In willekeurige volgorde: Anne, Anke, Maaike, Marit, Rianne, Daan, Mirjam, Carlijn, Esther, Jana, Lara, Dorien, Roel, Thea, Fokke, Sanne, Noralie en Carolien. Ik werd aangenaam verrast door jullie kennis, kunde en vasthoudendheid. Ondanks het feit dat ik gemiddeld dertig jaar ouder ben, even oud als jullie ouders, mocht ik mee op jullie uitjes, borrels en heb ik zelfs één pub-quiz overleefd. Ankie, jou wil ik speciaal noemen, omdat we samen vier jaar lang 'partners in crime' waren. Jij bent natuurlijk al laaaang klaar. Ik mis je nog vaak met je vrolijkheid, no-nonsense houding, betrokkenheid en de vele Tony's Chocolonely-repen.

Bedankt, alle PVI-collega's en -leiding voor jullie steun en belangstelling. Jullie hebben het mogelijk gemaakt dat ik vijf jaar lang tijd kreeg om deze promotie af te kunnen maken. Ik hoop de verworven kennis nu in te zetten binnen ons expertisegebied netwerksamenwerking.

Bedankt, alle vrienden. Dank dat jullie met me mee hebben geleefd tijdens het promotie-proces. 'En … hoe ver ben je?', tijdens veel thee met Ing, wandelingen met Karin, bezoekjes aan Ivo (je kunt het laatste eindje helaas niet meer meemaken), borrels met Erna, BB met Els, uitjes met Esther en etentjes met de rebellenclub. Gelukkig heb ik nogal wat clubjes verzameld in de loop van de jaren, die me de nodige ontspanning brachten: koor, eetclubs, boekenclubs en Bosbes-wandelclub: jullie ook bedankt.

Bedankt Alice en Gert, we komen uit een warm nest, dat helpt je door het leven. Hard werken en je talenten gebruiken. Deze lessen zijn ons door papa en mama met de paplepel ingegoten. Ze zouden trots zijn. Alice, ik ben heel blij dat je mijn paranimf bent.

Bedankt Stella en Doris, onze fijne meiden. Ik ben enorm gelukkig met jullie. Toen ik begon aan mijn promotie waren jullie allebei druk op de middelbare school. En wat je moeder toch voor een vreemd werk deed … nee dat was niet uit te leggen aan jullie vrienden. Maar inmiddels zijn jullie allebei ook begonnen met een wetenschappelijke studie en dat schept een nieuwe band. We bespreken aan de keukentafel nu ook statistiek (en niet alleen feestjes en nieuwe huisgenoten).

Bedankt Paul, mijn Mister Darcy en nu ook mijn paranimf. Je was in het begin terughoudend of ik dit wel moest doen of ik wel gelukkig zou zijn in de wereld van de wetenschap. Maar ik kreeg alle steun en ruimte van jou om deze ambitie waar te maken. Jij hebt inmiddels al heel veel boekjes geschreven. Ik houd het bij deze.

OVER DE AUTEUR

Minke Nieuwboer werd op 2 februari 1960 geboren in Monster en groeide op in Rhenen. In 1978 behaalde ze haar VWO diploma aan het Christelijk Lyceum in Veenendaal en studeerde ze vervolgens Verpleegkunde (HBOV) aan de Katholieke Hogere School voor Verplegenden in Nijmegen. Daarna begon ze haar professionele loopbaan als wijkverpleegkundige in Nijmegen-West. In die periode rondde ze in 1993 ook haar parttime opleiding Gezondheidswetenschappen (afstudeerrichting Verplegingswetenschappen / Beleid en Beheer) af aan de Universiteit van Maastricht. Vervolgens werkte ze vier jaar als kwaliteitsbeleidsmedewerker bij de Districtskruisvereniging Zuid-Gelderland en combineerde deze baan met docentschap aan de opleiding Verpleegkunde van de Hogeschool Arnhem Nijmegen.

In 1997 vervolgde ze haar loopbaan als beleidsmedewerker bij het Landelijk Centrum voor Verpleging en Verzorging in Utrecht, waarbij ze nauw betrokken was bij de oprichting van de Algemene Vergadering Verpleging & Verzorging, de voorloper van de huidige beroepsorganisatie V&VN. Nadat ze in 2002 de overstap maakte naar het Radboudumc in Nijmegen, werkte ze als stafmedewerker/ adviseur voor transmurale samenwerking en netwerksamenwerking, eerst bij Staf Zorg en later bij de Adviesgroep Procesverbetering en Implementatie. In deze periode coördineerde ze diverse programma's gericht op netwerksamenwerking, die zich op het grensvlak van ziekenhuis en eerste lijn of binnen de eerste lijn afspeelden, zoals Transferpunt zorg, Universitair Kennisnetwerk Ouderenzorg Nijmegen (UKON), Netwerk 100, uw welzijns-en zorgnetwerk, Ateliers in de Eerste lijn en DementieNet.

In 2014 startte ze parttime als promovenda op het DementieNet project onder begeleiding van Professor Marcel Olde Rikkert (Geriatrie) en dat resulteerde in dit proefschrift. Ze is nog steeds actief als coördinator van DementieNet en werkt met enthousiasme aan de verspreiding van de DementieNet aanpak.

Minke is getrouwd met Paul Thissen en samen hebben ze twee dochters, Stella (1998) en Doris (2000).

ABOUT THE AUTHOR

Minke Nieuwboer was born on February 2, 1960 in Monster and she grew up in Rhenen. In 1978, she graduated from secondary school (higher secondary education) at the ‘Christelijk Lyceum Veenendaal’ and subsequently she studied Nursing education (HBOV) at the ‘Katholieke Hogere School voor Verplegenden’ in Nijmegen. She started her professional career as a community nurse in Nijmegen-West. During this period she studied part-time Health Science (majors Nursing Science / Policy and Management) at the University of Maastricht. In 1993 she graduated and continued her career as quality officer at the ‘Districtskruisvereniging Zuid-Gelderland’ in Nijmegen, which she combined with teaching Nursing at the HAN University of Applied Sciences in Nijmegen.

In 1997 she made the switch to be a policy officer at the National Centre for Nursing and Care in Utrecht, and was closely involved with the foundation of the General Meeting of Nursing and Care, the forerunner of the V&VN, the present National Professional Association of Nursing and Care. After she changed jobs to the Radboudumc in 2002, she worked as an executive officer/ advisor for transmural and network collaboration subsequently at ’Staf Zorg’ and the Advisory Group ‘Process Improvement and Implementation’. During this period she coordinated several programs aimed at development of integrated care: Care Transfer-point, ‘Universitair Kennisnetwerk Ouderenzorg Nijmegen’ (UKON), Netwerk 100, uw welzijns-en zorgnetwerk, ‘Ateliers in primary care’ and DementiaNet.

In 2014, she started part-time as a PhD student on the DementiaNet project under supervision of Professor Marcel Olde Rikkert (Geriatric Medicine), which resulted in this thesis. Minke is still engaged to spread the DementiaNet approach through the Netherlands.

Minke is married to Paul Thissen and together they have two daughters, Stella (1998) and Doris (2000).

LIST OF PUBLICATIONS

Nieuwboer MS, Richters A, van der Marck MA. Triple aim improvement for individuals, services and society in dementia care : The DementiaNet collaborative care approach. Zeitschrift fur Gerontologie und Geriatrie. 2017;50(Suppl 2).

Richters A, **Nieuwboer MS**, Perry M, Olde Rikkert MGM, Melis RJF, van der Marck MA. Evaluation of DementiaNet, a network-based primary care innovation for community-dwelling patients with dementia: protocol for a longitudinal mixed methods multiple case study. BMJ open. 2017;7(8).

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*shared last authorship

Nieuwboer MS, van der Sande, Olde Rikkert MGM, van der Marck. Clinical leadership training in primary care networks: an explorative mixed methods evaluation. *Submitted*

PORTFOLIO

Courses

2014	Qualitative Research Methods in Healthcare (Care Research School)
2015	Scientific integrity (Radboudumc Health Academy)
2015	Academic writing (Radboud University)
2017	Perfecting your Academic Writing skills (Radboud University)

Conference contributions

April 2015	UKON symposium, The Netherlands Oral Presentation (key note) “Veranderingen in de zorg en de ontwikkeling van Netwerkzorg”
Mei 2015	Landelijke Studiedag De wijkverpleegkundige aan zet, The Netherlands Oral Presentation (key note): “Geïntegreerde Eerstelijnszorg”
October 2016	European Nursing Congress ‘Caring for older people’, The Netherlands Symposium ”Development of professional leadership in the Netherlands; nurses in the lead for better elderly care” Oral Presentation: “Clinical Leadership in integrated elderly care; preliminary results of a support program”
May 2017	International Conference for Integrated care, Ireland Poster Presentation: “Determinants for miscommunication in primary healthcare: It all comes down to trust!” Oral Presentation: “Collaborative primary care for community dwelling individuals with dementia: The DementiaNet approach”
June 2017	NHG-Wetenschapsdag, The Netherlands Oral Presentation: “Vertrouwen is cruciaal; beïnvloedende factoren voor communicatie tussen huisarts en wijkverpleegkundige”
October 2017	Symposium Evidence Based Practice HAN University of Applied Sciences/ VenVN, The Netherlands Oral presentation: “Onderzoek communicatie tussen wijkverpleegkundige en huisarts”
November 2017	Kennismarkt HAN University of Applied Sciences, The Netherlands Oral Presentation (key note): “Communicatie tussen eerstelijns professionals: vertrouwen komt te voet en gaat te paard”
May 2018	International Conference for Integrated care, The Netherlands Oral Presentation: “Longitudinal multiple case study on effectiveness of network-based dementia care towards more integration, quality of care, and collaboration in primary care”

May 2018	International Forum on quality & Safety in Healthcare, The Netherlands Poster Presentation: “Safer collaborative primary care for community dwelling individuals with dementia: the DementiaNet approach”

Prizes

2019	Myrra Vernooij-Dassen Projectprijs, Radboud Alzheimer Centrum

Other activities

2015-2018	Supervise interns of the HAN University of Applied sciences/ Nursing
2015-2019	Member of the research group ‘Innovation in care’ at the HAN University of applied science
2018	Peer review for scientific journals
2018	Peer review for ZonMw

DATA MANAGEMENT

The data in the DementiaNet study and sub-studies are obtained in accordance with the Findable, Accessible, Interoperable and Reusable (FAIR) principles. Raw data are stored anonymously online on servers of the Radboudumc and are accessible by the principle investigator and the department's data manager. All filenames are documented according to the Data management protocols of the department of Geriatrics and will be stored according to Fair principles for at least 15 years. The dates of storage of files are clearly mentioned, so archived data will be removed after 15 years.

Informed Consent

For all interview and focus group interviews, informed consent was obtained from all participants.
All informed consent paper forms are filed in the closed archive of the Department of Geriatrics in special labeled boxes.

Patients who were the subjects of the conversations between nurses and doctors (Chapter 7) were informed about the study by the participating nurses and each patient gave permission to be included, which was registered in the nurses' electronic patient record. The general practitioners were informed using a letter and provided oral consent before each recording.

Ethical approval

The DementiaNet study protocol (Chapter 3) was reviewed by the local medical ethics committee; formal judgment was not required (File number CMO : 2015–2053).
According to the local medical ethical committee, the study on communication (Chapter 7) could also be carried out without formal ethical approval (File number CMO: 2016-2604).
A cooperation agreement between the Radboudumc and Telecats, a Dutch firm that provided the IVR technology, stated all of the privacy regulations for patients, nurses, and general practitioners (Chapter 7).

Data type

Quantitative:

- Questionnaires are stored according to the Archiving protocol of the Department of Geriatrics (Chapters 5, 6, 7)
- Data were processed in SPSS en are stored in .sav files.

Qualitative:

- Recording-files (.MP3 files) and verbatim descriptions (word.docx files) of interviews and focus group interviews are stored according to the Archiving protocol of the Department of Geriatrics (Chapters 5, 6, 7).

Review (Chapter 4):

- Search strategy is filed as a word format document and results of the search strategy is filed in Endnote (.enl files).
- All full-text articles of include studies are filed as .pdf files
- All data-extractions are processed in tables and filed in word.docx files.

Availability of data

The datasets of the studies described in this thesis are available from the corresponding author on reasonable request. Via papers still to be published, we will offer open access and reuse of the data on request.

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Jong, D.L.K. de (2018). *Regulation of cerebral perfusion in Alzheimer's disease: from seconds to months.*

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