Handle with care

A multidisciplinary analysis of frontline medical leadership in medical residents

Judith Voogt

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Behandel met zorg

Een multidisciplinaire analyse van klinisch medisch leiderschap onder arts-assistenten

(met een samenvatting in het Nederlands)

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Prof. dr. M. Noordegraaf
Prof. dr. M.F. van der Schaaf

Co-promotor

dr. E.L.J. van Rensen

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Chapter one

Introduction

INTRODUCTION

ON a daily basis medical residents encounter many major and minor issues that affect the organization and quality of their work.[1,2] They work at the frontline of patient care and experience organizational barriers and implementation processes hands on. In order to profit from these experiences and improve the quality of patient care, it is important that residents share their experiences and speak up when they have novel ideas, opinions or suggestions.[3] This thesis aims to make sure that these issues are discussed at the places where they can bring about change and do not end over morning coffees.

The subject of this thesis is medical leadership, which – in this thesis – refers to proactively taking responsibility for the quality of care for patients, society and yourself. Medical leadership is an important requisite for all physicians.[4–7] We will focus on a specific aspect of *frontline* medical leadership: speaking up about organizational barriers and opportunities by sharing novel ideas and suggestions for change. Moreover, we will look at medical leadership from an institutional angle and describe how institutions can affect medical leadership and vice versa.

The main research question of this thesis is:
"How can frontline medical leadership, speaking up specifically, of medical residents be fostered and organized in medical service delivery?"

Medical leadership is a popular and widely adopted concept in medicine.[6–10] It is also a so called 'magic concept': it is inspiring and pervasive among physicians, managers and scholars, simultaneously it is also vague, meaning nothing and everything at the same time.[11] In this thesis we go beyond this ambiguity as we try to make sense of medical leadership, both conceptually and empirically. In this introduction chapter we will first provide background information on the professional characteristics of physicians in order to understand the context in which medical leadership development takes place. We will describe the changes in professional and medical work and explain how these changes call for additional knowledge and skills of professionals. We will then zoom in on *frontline* medical leadership development, *proactive behavior*, speaking up and voice in particular.

BACKGROUND

Physicians as 'pure' professionals

For medical leadership development, it is important to be aware of the professional nature and characteristics of physicians. Physicians are traditionally viewed as so-called 'pure' professionals, just as lawyers, judges and accountants.[12–16] This means they are members of a professional group that has specific cultural, educational and occupational characteristics and has always enjoyed a special status in society. Generally speaking, professionals are people who know what they are doing, who possess a certain level of knowledge and skills, have had years of training and gathered practical experience over the course of their lives. The sociology of professions literature describes three major characteristics of professionals:[12,13,17] first, professionals possess *specialized knowledge*. Knowledge that is not accessible to everyone and that is developed over the course of years. This knowledge enables the professional to handle complex cases. Secondly, professionals have a *service ideal*. This means that they do not seek to maximize profits, but use their knowledge to benefit their clients, driven by an ethical code. Based on the first two characteristics professionals can claim their third characteristic: *professional autonomy*. Doctors, lawyers and accountants possess such specialized knowledge that they are presumably the only ones who can judge the level of competence of their peers. In this way, professionals possess a certain monopoly and hereby they can protect their special status. In return for their professional autonomy, the special status they receive and the privilege of self-regulation, society expects professionals to deliver their services. A service that is competent, altruistic and moral. This 'arrangement' is also referred to as the social contract.[18] Physicians, lawyers and accountants are long acknowledged professionals, while social work, nursing and teaching never acquired as much status and privilege. They are often referred to as semi-professionals.[15,17] It is important to be aware of these professional characteristics when describing changes in professional work and education, as they influence how professionals organize, regulate and reject or adopt new ways of working.

In recent years, scholars have emphasized that this classic model of professionals and professional work does not accurately reflect practice.[16,19–21] They state that 'pure' professionalism is an ideal-type and in practice professionals do not act independently, but are always situated in organizational contexts and have to adjust to their changing (societal) contexts. As such, variants of professionalism have been promoted, such as organizational professionalism, hybrid professionalism and organized professionalism. In the next sections we will describe the changes in the work of (medical) professionals and the influences on (medical) professionalism.

Changes in professional work

At the end of the twentieth century pressure started building on the classic professional groups because of the economic crisis and rising costs of the welfare state. These financial pressures caused drastic financial cuts and reorganizations, such as New Public Management (NPM) reform. Professionals were accused of being self-centered, money-driven and inefficient. This started the influx of managerial principles in professional work, such as the introduction of planning and control systems, non-professional managers and the market regulation in health care (see for example: Mirko Noordegraaf & Van der Meulen, 2008).[22] Another important change is the democratization of knowledge due to the rise of the internet. Nowadays, individuals can gather knowledge and insights online and no longer have to rely on the judgment of professionals. The internet has empowered them by giving them access to knowledge that used to be a professional monopoly, one of the important characteristics of professionals. For example, many patients nowadays diagnose their own medical needs and people increasingly handle their own lawsuits online.[23] Also, the service ideal of professionals is under pressure as they are dealing with publicly exposed incidents by (social) media, lowering their moral status. There is an emphasis on 'naming and shaming'. In the Netherlands, a list was published online with the names of 'failing' physicians. Next to the names of physicians who were convicted by disciplinary law, the list includes names of physicians who are 'violating their professional responsibilities', without any preceding disciplinary process.[24] Media attention for medical professionals who made wrong decisions – both deliberately or unconsciously – probably has further decreased the professional image of physicians.

Another important characteristic of professionals: time and quality for individual case treatment, is under pressure. Speed and efficiency have become major drivers in the work of professionals and severely reduced time and attention for clients, further decreasing the quality of professional services.[13,25,26] This is also true for medicine. Taken together, these changes put the social contract under pressure and society feels that professionals are not delivering the level of services as they ought to. In response, the special privileges professionals enjoy are revoked. It is widely agreed that professionals are in need for new competencies, skills and (re)configuration of their work to meet these new societal needs.[23,26,27] This reconfiguration needs to be initiated - or at least endorsed - by the professions themselves, as they educate their own future generations.[28] For this reason it is important that the professions start preparing their graduates for a rapidly changing professional environment.[26]

Changes for medical professionals

Next to the issues described in the previous section - the introduction of NPM principles, democratization of medical knowledge and influence of (social) media on the professional service ideal – medicine is facing its own major challenges such as rising costs, multi-morbidity, chronic diseases and sustainability. These changes call for adaptations to the way in which physicians work. For instance, the rising costs in health care require physicians to make cost-conscious decisions in their daily work and incorporate cost considerations in their treatment plans.[29,30] To keep healthcare affordable and accessible it is important that physicians participate in discussions about ways to proactively reduce healthcare costs. Multi-morbidity causes complex medical problems for patients and their physicians. Managing such complex cases requires teamwork and collaboration across medical borders such as primary and secondary care, but also between specialty groups or hospitals. In the Netherlands, one of the ways to deal with this complexity and simultaneously confine health care expenditure is to assign less complex cases to newly developed professional groups such as physician assistants, specialist nurses and pharmacy practitioners.[31] In these instances, physicians work at arm's length as primary responsible physician, indirectly managing their patients by managing physician assistants. Innovations such as technological advancements, patient involvement, personalized medicine and big data also pose challenges to the organization of health care. Instead of managing individual cases within the walls of their offices, physicians nowadays are central players in complex healthcare systems. And finally, next to cure or care for patients, medical professionals are expected to 'coach' their patients towards sustainable health.[32]

These changes call for additional skills beyond reaching a diagnosis, making a treatment plan and prescribing medication. Instead of only deciding what services to deliver, physicians are expected to manage the delivery of these services and to incorporate managerial principles in their professional work. In professionalism literature, managerialism generally represents business-like principles and values such as timeliness, speed and efficiency, whereas professionalism focusses on professional attention, time and humanity.[19] Managerialism produces well-organized and transparent services for groups of clients and customers, while professionalism offers quality and humanity for individual cases. Currently, professional and managerial boundaries are blurring, referred to as the hybridization of professional work. One step beyond hybrid professionalism is the notion of organizing professionalism: embedding organizing roles and capacities in professional action. Medical leadership can be viewed as an expression of hybrid professionalism.

Whereas in the past managerial and professional worlds seemed incompatible, nowadays researchers are looking for ways to stimulate this hybridization, herewith aiming to increase the sustainability of professional services.[20,21,33]

In medical education literature it is argued that the integration of managerial and organizational skills in medical work could be beneficial for health care quality and job satisfaction of physicians.[6,7] For these reasons there has been an increasing call for medical leadership development (for example Blumenthal et al., 2012; Clark, 2012; Warren & Carnall, 2011).[5,6,34] Simultaneously, several scholars demonstrated that young physicians did not feel prepared for their leadership and supervision tasks,[35–37] even resulting in burn-out.[38] In the next section we will highlight initiatives to implement leadership in medical education and address current challenges.

Medical leadership in medical education and research

Medical leadership was introduced in (postgraduate) medical education (PGME) internationally at the start of the 21st century. PGME underwent major changes in the previous years with the introduction of competency based medical education (CBME). CBME refers to outcome-based medical curricula that emphasize the different roles (or competencies) physicians need to adopt to provide excellent health care. In Canada, Australia and several European countries the so-called 'CanMEDS' framework was leading, which identified seven roles: medical expert, communicator, collaborator, scholar, professional, health care advocate and manager.[39,40] In the United States the Accreditation Council for Graduate Medical Education (ACGME) described six core competencies for physicians: patient care, medical knowledge, systems-based practice, practice-based learning & improvement, interpersonal & communication skills, and professionalism.[41] The introduction of these new accreditation standards catalyzed a true paradigm shift towards CBME. New courses were launched such as communication training (for example lessons on how to deal with emotional patients or how to deliver bad news), courses on integrity, giving and receiving feedback, critically interpreting research and collaboration within teams. CBME focuses on individual learning trajectories of students and residents and emphasizes the importance of feedback and reflection. Moreover, it follows a systematic and modularized approach to medical education.

The competency frameworks all specifically described what constitutes mastery level of achievement. For example, the 7 CanMEDS roles contain 28 key competencies which are further elaborated in 128 enabling competencies.[42] These early competency frameworks were frequently used, but struggled with the operationalization of the

core roles and general competencies.[43] To deal with this struggle, CBME underwent another change in 2015 as so-called milestones were introduced. A milestone is a significant point in development, and describes the learning trajectory within a sub-competency, from beginner to proficient. Milestones have been related to 'entrustable professional activities' (EPA) which are units of professional practice – tasks or responsibilities – to be entrusted to unsupervised residents when they reach the appropriate level of competence.[44–46] With milestones and EPAs, CBME translates competencies into clinical practice and aims to move away from the use of numeric rating scales of competencies. Moreover, EPAs enable individual disciplines to adjust the general competencies to their own needs and tailor medical training trajectories to the progress of individual residents.

In 2015, the CanMEDS 'manager' role was changed to 'leader'.[47] This change was based on the notion that the old manager role had little emphasis on how physicians contribute to a vision of excellence in the health care system or how they take responsibility for providing the best patient care possible. According to the CanMEDS leader role, physicians should *"... engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers."*[47] Across the globe, there are several other competency frameworks that focus on medical leadership, such as the Medical Leadership Competency Framework of the NHS[48], LEADS[49], LEADS Australia[50], and the Dutch 'Raamwerk Medisch Leiderschap'.[51] In the Netherlands, the CanMEDS roles were introduced from 2001 onwards and officially adopted in 2005.[52,53] In the following years all specialist training programs revised their curricula accordingly.[40] In the Netherlands, training programs also struggled to operationalize the general competencies into educational practices. For this reason, the 'CanBetter' project was launched by the Modernisering Medische Vervolgopleidingen (MMV, modernization of PGME). CanBetter aimed to pay more attention to the non-medical competencies and support medical educators in identifying practical learning moments to teach and develop these competencies in residents.[54] The project focused on four core themes: elderly care, patient safety, high value cost conscious care, and the subject of this thesis, medical leadership.

Reviews on medical leadership show that the abundance of skills, traits and knowledge attributed to medical leaders present a major challenge to incorporate medical leadership in medical education.[8–10,55,56] Each review struggles with finding overarching concepts or key features and is left with 'counting' the pieces of the puzzle that are found by others. Many articles rank predefined lists of skills or activities, but do not show the relative importance of these items for effective medical leadership, making it a conceptual puzzle and fragmented research field.[10] Consequently, medical leadership is considered undertheorized and in need of a common conceptual framework and scientific rigor.

For these reasons we differentiate medical leadership according to three types that are often described in literature: frontline leadership, service leadership and institutional leadership.[6,57] This distinction was also used by the CanBetter initiative who depicted medical leadership as a pyramid (**Figure 1**). The bottom layer of the pyramid represents the majority of physicians, who should all be able to take responsibility for the quality of care on a daily basis, in their own work context. This is the minimal level of leadership required for all physicians. Several physicians will train to become (mid-level) service leaders, for example to be an effective innovator, to be the representative for the medical specialists in their hospital or to be the medical manager of a local public health department. They are the middle layer of the pyramid. A few physicians will hold top level positions such as being the physician-CEO of a hospital, or the chairman of a nationwide health organization. The layers do not reflect relative importance of one type of leadership compared to the other (the top layer being more important than the base layer) but represent the number of physicians who hold these positions. In this thesis we will focus on *frontline medical leadership*, as it is an important requisite for all physicians. This layer has received little attention compared to formal leadership training. More specifically, we will address 'speaking up' as one of the manifestations of frontline medical leadership. In the next paragraph we zoom in on frontline medical leadership and present current challenges in integrating frontline medical leadership in health care.

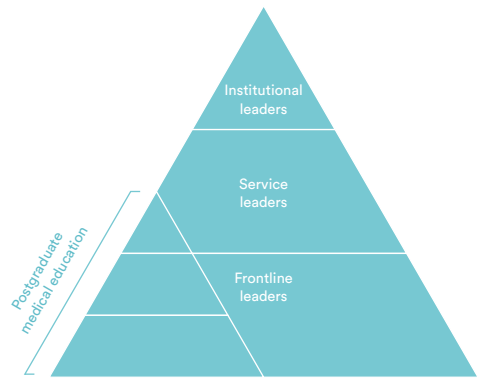

Figure 1 – *Different types of medical leadership (adapted from CanBetter work group)*[58]

Frontline medical leadership: speaking up

Frontline medical leadership has great potential to increase quality of care from the 'sharp end'. Residents are in close contact with patients and are responsible for a great portion of (acute) medical care. Their initial decisions greatly influence the course of the medical process of patients.[3,59] They are the eyes and ears of medical specialists, work in many different departments and have a fresh take on healthcare processes. This position makes them ideal candidates to play a key role in quality improvement.

The focus of this thesis and an important component of frontline medical leadership is *speaking up* when you have relevant information, novel ideas or concerns that could benefit the organization.[47] Speaking up, exchanging ideas, information or concerns that could benefit the organization is in social sciences often referred to as 'voice behavior'.[60–65] Three types of voice can be distinguished: suggestion-focused, problem-focused and opinion-focused voice.[61,66] Most research on speaking up by medical residents stems from the quality and safety literature and covers problem-focused voice. This refers to an expression of concern about work practices, incidents or behaviors that can be harmful for the organization, for instance, speaking up about (un)professional behavior, (hand)hygiene, ethical issues and risky or deficient actions of medical staff.[63,67–70] Suggestion-focused voice refers to 'the communication of suggestions or ideas for how to improve the work unit or organization'. Both problem-focused as well as suggestion-focused voice challenge the status quo and aim to benefit the organization. Problem-focused voice is reactive and focusses on stopping or preventing harm, while suggestion-focused voice is proactive and focusses on realizing new possibilities. The third type of voice is opinion-focused which reflects communicating points of view on work-related issues that differ from those held by others. This type is more defiant than the others. In this thesis we will focus on suggestion-focused voice. Making a nuance between different types of voice can be beneficial as voice can be initiated – or inhibited – by different motivating factors. For example, self-protective motives can be less important for suggestion-focused voice than for opinion-focused voice, which can be viewed as riskier.

Contextual factors that have been linked to speaking up include the presence of formal mechanisms to provide input and the amount of bureaucracy and hierarchy in an organization.[61] Literature shows that voice is not an easy task, especially in the context of medical residency. It is considered extra-role behavior. This means that speaking up goes beyond what is expected of employees and requires sufficient amounts of time and energy, something which is scarce for resident. Residents deal with high work load (both quantitative as qualitative) and burnout rates are high among this group.[3,65,71–73] Also, speaking up is described in literature as discretionary behavior: employees choose whether or not to engage in this behavior. This choice is influenced by a range of personal and contextual factors such as personality and job attitudes.[60–62,74,75] Literature lists certain combinations of personal, work and task characteristics that affect the motivation of employees to offer suggestions for change. However, a coherent theoretical framework which integrates these findings is still missing.[61]

Little is known on factors influencing suggestion-focused voice by medical residents. Research on problem-focused voice by medical residents suggests that health care professionals hesitate to voice their concerns. Major influencing factors are intra-individual factors such as perceived efficacy of speaking up, for instance a lack of impact and personal control and the perceived safety of speaking up, such as fear for conflict, concerns about the responses of others and appearing incompetent. In addition, contextual factors influence health care professionals motivation to speak up about safety issues, such as transparent and open hospital policy, leader attitude and clarity of the clinical situation.[69]

Until now, there is little information on motivations, inhibiting and promoting factors that influence proactive (suggestion- and opinion-focused) voice behavior by medical residents. In this thesis we explore which factors could either inhibit or promote speaking up about organizational barriers and opportunities among medical residents.

Challenges in medical leadership education and research

In the previous sections we presented several challenges that currently exist in medical leadership education and research. Before we will present our research questions, we will briefly summarize these challenges. First, medical leadership is regarded as undertheorized and ambiguous concept both in science as well in practice.[10,76,77] From the introduction of the medical leadership concept onwards there has been confusion about the definition of medical leadership, its target audience and ways to develop it. In recent years, several authors have underscored the difficulty of integrating such an emergent, unpredictable and intersubjective subject in medical education.[76,78] For these reasons we will both reflect on different interpretations of medical leadership on the one hand and focus on speaking up as a specific manifestation of frontline medical leadership on the other hand.
Second, research shows that speaking up is not an easy task as it takes strength

and sometimes even courage. It is believed to be a complicated behavior to carry out at work.[74] It goes beyond what is expected of employees and implicitly, voice behavior entails risk, since offering even a seemingly constructive suggestion implies a challenge to the status quo. This can be especially true for medical professionals, who are embedded in a strong professional cultures.[16] Previous research on problem-focused voice by health care professionals shows that professionals tend towards silence when they have concerns about safety issues.[69] For these reasons, it is important to explore which factors could either inhibit or promote speaking up about organizational barriers and opportunities by medical residents.

RESEARCH QUESTIONS

This thesis consists of two parts, aimed at answering the main research question that flows from the previous paragraphs:

"How can frontline medical leadership, speaking up specifically, of medical residents be fostered and organized in medical service delivery?"

In the first part of this thesis we reflect on medical leadership from a conceptual, empirical and institutional perspective to address the following sub-questions:

1 What does (medical) leadership mean? What perspectives on medical leadership exist and what are the implications for practice? *(Chapter 2)*
2 How is medical leadership fostered in the medical context? What are pitfalls and opportunities from an institutional perspective? (*Chapter 3)*

In the second part of this thesis we focus on frontline medical leadership and zoom in on a specific manifestation of frontline medical leadership by residents: speaking up. The following sub-questions are addressed:

3 What motivates residents to speak up about organizational barriers and opportunities that could improve the quality of their work? *(Chapters 4 and 5)*
4 How can speaking up by medical residents be fostered in practice? What are educational inhibitors and facilitators? *(Chapter 6)*

RESEARCH APPROACH AND DESIGN

In the next paragraphs we will elaborate our research methodology in detail. First, we will address the different streams of literature we use to understand frontline medical leadership and speaking up in medical residents and describe the multidisciplinary nature of our research. Next, we present the methods we use to answer the research questions.

Theoretical foundations

In this thesis we use leadership literature from social sciences (for example: 't Hart, 2014; Bass, 2008; Bass & Riggio, 2006; Brown & Treviño, 2006; Yukl, 2013) to put medical leadership in a broader (historical) perspective.[79–83] We combine this with research from (occupational) psychology on proactive behavior and voice (for example: Frese & Fay, 2001; Morrison, 2011, 2014; Parker et al., 2006; Tornau & Frese, 2013), which brings a strong empirical foundation with experiences on speaking up from various occupational fields.[60–62,74,75] Educational theories on resident learning and behavior change (for example: Fishbein & Ajzen, 2010; Fishbein & Yzer, 2003; Kirkpatrick & Kirkpatrick, 2007; Ryan & Deci, 2000) provides us with knowledge on conditions for individual behavior (change) that is useful for our studies on proactive behavior and voice.[84–87] Combining this knowledge with insights from sociology of professions, (hybrid) professionalism and institutions (for example: Evetts, 2011; Freidson, 2001; Glouberman & Mintzberg, 2001; March & Olsen, 1989; Noordegraaf, 2007; Scott, 2001, 2008; Waring & Currie, 2009) and the job demands and resources model and employee well-being (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Van der Doef & Maes, 1999; Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010; Schaufeli & Bakker, 2004) allows us to take a context-sensitive approach in which we take the professional nature and high demanding job context of physicians into account.[13,14,16,20,89–96] Summarizing, we rely upon a multi-theoretical approach in which we combine different ways of 'seeing' and analyzing our main subject.

Research design: mixed methods

To provide an answer to the different research questions, this thesis uses a mixed methods approach (see **Table 1**). Mixed methods is a hybrid form of research in which a researcher combines different methods and worldviews to collect both qualitative and quantitative data.[97] With mixed methods research, scholars can fit their methods to suit their different types of research problems.

First, we will use **discourse analysis** to understand what medical leadership means in the medical context and moreover, to identify how this affects current (medical) practices. Critical leadership studies use discourse analysis to investigate how the

discourse of leadership can construct new identities and realities.[98] Discourse analysis views language not as merely descriptive and objective, but performative: language shapes our view of the world and reality, instead of being merely a neutral medium mirroring it.[99] In short, language does something and discourse analysis is a method to analyze what language does, what underlying motives are and the way in which it affects perceptions and cognitions.

Second, we will use secondary sources to apply the meta-theoretical perspective of 'institutional theory' to analyze contextual constraints on, and opportunities for medical leadership development. Institutional theory allows us to look at 'the bigger picture'. By looking at the medical world through an institutional lens and considering medical leadership as a form 'embedded agency', we aim to increase the probability that medical leadership development fits the context in which it takes place. We use available empirical analyses to carry out such an approach.

Third, in the more extensive empirical part of this thesis we will zoom in on proactively speaking up and sharing ideas for change by medical residents, as a manifestation of medical leadership. In this part we use an exploratory sequential mixed methods design.[97] The purpose of this exploratory sequential design is to first explore this topic with a small sample and then determine whether the qualitative findings generalize to a large sample. The first phase is an **exploratory qualitative interview study** which explores what helps or hinders residents to speak up about organizational barriers and opportunities for the quality their work and share their suggestions for change. In the quantitative phase will test whether two main aspects of medical residents' work context, i.e., job control and supervisor support, are associated with speaking up by medical residents using a **cross-sectional survey design**. Structural equation modelling (SEM) will be used for data analysis.[100]

Lastly, in this thesis we will conduct a **mixed methods pilot-study** of an educational initiative called 'Ponder and Improve' (*'Verwonder en Verbeter'* in Dutch) that aims to stimulate voice behavior and quality improvement in residents. Through observations, interviewing and document analysis we aim to understand how medical leadership development works in practice.

Multidisciplinary approach

This thesis is a product of the Professional Performance focus area, a collaboration between five faculties of Utrecht University that was founded to connect researchers, teachers and practitioners that are concerned with the changes in professional services and professional work.[26] The focus area relates research activities and outcomes of multiple professional fields, especially medical, veterinarian, judicial, educational and accountancy fields. These professional fields all deal with the same pressures such as changing client demands, new technologies, fiscal stress and budgetary constraints. The five connected faculties are medical sciences, social sciences, LEG (Law, Economics and Governance), veterinarian sciences and the humanities.

As a result, the core of our research team consists of researchers from different fields: medicine, education, public administration and professionalism, and quality and safety. Each team member brings a different perspective to the analysis of medical leadership, combining different research methodologies, literature and interpretations of the data. The first part of this thesis (chapter 2 and 3) is a product of the fusion of the practical knowledge of the medical team members, combined with the reflexive and meta-theoretical view from public administration. The second part of this thesis (chapters 4 and 5) puts emphasis on educational theory and research methods. In chapter 6, the quality and safety perspective is more central. Although there is a slight shift of emphasis between the different chapters, we aimed to include all perspectives throughout the thesis. This was also visible in the supervisory team. The final product is a thesis based on articles accompanied by an extensive introduction and discussion chapter in which the findings are discussed in the light of relevant literature of the different fields.

Chapter	Title	Research Questions	Method and participants[¥]	Analysis method
1	**Introduction**			
2	**Unraveling medical leadership**	What perspectives on medical leadership exist in the Netherlands and what implications does this have for practice?	Discourse analysis of 12 Dutch articles on medical leadership	Inductive (open) coding of articles, identifying 3 recurrent themes
3	**From passivity to proactivity? Institutional Constraints on (and Opportunities for-) Developing Medical Leadership**	How can medical leadership be fostered in the medical context, and what are pitfalls and opportunities from an institutional perspective?	Perspective based on explorative evidence	Application of three institutional lenses of institutional theory to medical leadership development
4	**Why Medical Residents Do (and Don't) Speak Up About Organizational Barriers and Opportunities to improve the quality of care**	What helps or hinders residents to speak up about organizational barriers and opportunities for the quality their work and share their suggestions for change?	Explorative, semi-structured interviews based on Critical Incident Technique of 27 residents	Open analysis of interviews following QUAGOL guidelines
5	**Speaking up, support, control and work engagement of medical residents. A structural equation modelling analysis**	How are supervisor support and job control associated with speaking up by medical residents, is there a mediation effect of well-being?	Cross-sectional survey of 499 residents	Structural equation modelling
6	**Building bridges: Engaging Medical Residents in Quality Improvement and Medical Leadership**	• What are important (educational) considerations for a learning initiative that engages residents in their organizational responsibilities? • Wat are the elements of the PIMP program? • What is the impact of the PIMP program on resident learning? • What are barriers and facilitators for successful implementation of the PIMP program? • What are the (potential) effects of the PIMP program on the quality of health care?	Implementation of PIMP program on 6 departments Semi-structured interviews with residents (n=16), program directors (n=5), specialist physicians (n=2) and support staff (n=1) Observations (n=9) using an observation list based on educational theories Open-ended evaluation (n=16) Evaluation of PIMP goals (n=119)	Open coding of interview and observation data. Assess learning effect using Kirkpatrick model for training evaluation Classification of PIMP goals using Eindhoven Classification Model Assess effect of PIMP goals with six domains of health care quality
7	**Summary of findings and general discussion**			

[¥] All data were collected in the Netherlands

Table 1 – *Overview thesis*

THESIS OUTLINE

Chapter 2 is a discourse analysis on medical leadership in the Netherlands. The study provides an historical overview of leadership and the ways it has been researched. The study maps several perspectives on medical leadership by coding twelve publications on medical leadership (interviews, popular scientific articles). By analyzing language within these publications using discourse analysis the study provides insight in underlying motives of physicians for medical leadership development.

Chapter 3 uses institutional theory to identify contextual constraints on and opportunities for medical leadership development. Institutional theory is a well-known theory from the social sciences that suggests that behavior of individuals is always embedded in institutional contexts. Institutions influence individual behavior in three ways: through regulative, normative and cultural-cognitive influences. The study uses these three institutional lenses to identify constraints and opportunities for medical leadership development.

Chapter 4 presents an interview study that explores what helps or hinders residents to speak up about organizational barriers and opportunities for the quality their work and share their suggestions for change. In this study we interview twenty-seven residents using Critical Incident Technique. Analysis of the interviews is conducted using the QUAGOL guide to identify residents' motivations to speak up or remain silent.

Chapter 5 covers the results of a cross-sectional survey on speaking up by medical residents among 499 residents in the Netherlands. Using structural equation modelling the study tests whether two key characteristics of the work context of residents – *job control and supervisor support* – are associated with residents' voice behavior. Moreover, the study examines whether these associations are mediated by work engagement

Chapter 6 describes the development, implementation and evaluation of the Ponder and Improve (PIMP) program, an educational initiative which aims to stimulate a positive attitude towards quality improvement and endorses proactive behavior in residents. It presents the results of a mixed methods evaluation of the PIMP program, which includes interviews, observations of PIMP meetings and document analysis of the quality improvement initiatives and communication concerning the PIMP program.

In *Chapter 7* we summarize and discuss our findings and draw general conclusions. We highlight three main themes and formulate academic and societal implications based on our findings.

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Chapter two

Unraveling medical leadership

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ABSTRACT

MEDICAL leadership is a popular topic in the Netherlands, and several interest groups now incorporate medical leadership into postgraduate medical education. However, there is no consensus on what this concept entails. By conducting a discourse analysis, a qualitative method which uses language and text to reveal existing viewpoints, this article reveals three perspectives on medical leadership: administrative leadership, leadership within organisations and leadership within each doctor's daily practice. Text analysis shows that the first two perspectives refer to medical leadership mainly in a defensive manner: by demonstrating medical leadership doctors could 'take the lead' once again; patient care only seems to play a small part in the process. These perspectives are not free of consequences, they will determine how the medical profession is constructed. For this reason, it is argued that there should be more emphasis on the third perspective, in which the quality of care for patients is of primary importance.

INTRODUCTION

After a long and hectic day in the emergency department (ED) you get home and sink down on the sofa. It never ceases to amaze you that the ED is so overloaded, while your colleagues in the out-patient clinic, who are on call for the emergency consulting hours, have almost nothing to do. After all, that clinic was set up to relieve some of the pressure on the ED. The system is not working properly. You want to do something to fix it, but where do you start? And who do you need when you want to make a change? Are you in the right position to do it, since you only started working here four months ago? Next morning the shrill peep of your pager catches your attention almost instantly. Before you know it, the day is over, then the week, the month and before you can blink, you're done with this part of your rotation and you move away to the next hospital.

This case illustrates the daily life of many medical residents. How can we help this young doctor to improve the quality of care? And how can we ensure that young doctors keep a critical eye on their daily working practices? These questions are important for postgraduate medical education. Nowadays, medical leadership has taken on a prominent role in this discussion. But what do we mean by medical leadership? And how can the concept contribute to problems facing young doctors in their daily work practices?

Attention for medical leadership

Medical leadership is a trending topic. This past year you could not have turned a page in any medical journal without being swamped by it: doctors should demonstrate more leadership! England, Canada, Australia and America have developed extended competency frameworks and a similar process is ongoing in the Netherlands. For instance, a project entitled 'Modernization of postgraduate medical education' worked on implementing medical leadership education in Dutch postgraduate training programs. The University of Rotterdam has appointed a professor of Medical Management and Leadership, and Twente University has developed the Dutch Medical Leadership Framework. However, there is no common interpretation of the concept of medical leadership. This is a problem, because how we define medical leadership will also determine how we shape our profession.
To clarify this situation, we conducted a discourse analysis of Dutch magazine articles on medical leadership. Discourse analysis emphasizes the importance of language and shows how language can affect 'real' practices.[1] This article first defines various concepts of leadership, then discusses the three perspectives on medical leadership in the Netherlands that our discourse analysis unravelled, paying extra attention to the one perspective that could actually help the young doctor in the above example.

What is leadership?

Leadership is an ambiguous concept. This ambiguity can cause much confusion, especially in a profession in which concepts generally only have one clear meaning. Stogdill concluded in 1974:

> *"There are almost as many definitions of leadership as there are persons who have attempted to define the concept."* [2]

Most studies define leadership as a process of deliberately influencing other individuals. This gives direction and structure to activities and relationships within a group or organization. However, opinions differ as to who exerts this influence, the manner in which the influence is exerted and the intended outcomes of the influence. Leadership can be explained as character traits, behaviors, patterns of interaction and administrative positions.[2,3] For this reason, many theories on leadership emerged in (social) science. Universal theories assume that certain aspects of leadership are true for all situations, while the contingency theory argues that some features are successful in some contexts, but not in others. Yet other theories focus on the followers, or the fact that leadership is a shared, disseminated or distributed phenomenon.[2-4] **Table 1** provides a summary of the various leadership theories.

Leadership is often mentioned in a single breath together with management, in reality, you can make a proper distinction between these two. According to Kotter, management tries to create predictability (managing complexity), while leadership tries to achieve change (leading change). Both are important. As an organization grows larger and more complex, there is a greater need for management. In a dynamic and uncertain environment, leadership is crucial.[2]

What is medical leadership?

The way in which leadership is framed varies across professions. Politics and business put the emphasis on simple heroic leadership, setting important people upon a pedestal (Mandela, Branson). The police find operational and strategic leadership important, while education focuses on process-oriented leadership. The notion of leadership is not universal. It reflects the aspirations, norms, values and complexity of the sector in which it is enacted. Therefore, it is important to be aware of how we frame medical leadership in the Netherlands.[5]

Leadership theory	Time period	Central idea
Trait theory	1930s–1940s	Leadership is an innate skill. Research into traits.
Behavioral/style theory	1950s–1970s	Focuses on what leaders do and how they act. Task-oriented or people-oriented.
Contingency theory	Early 1960s	Emphasizes the importance of context. E.g. characteristics of followers, type of work, type of organization.
Power and influence theory	Early 1980s	Influence relationship between leader and follower. How much power does the leader have and how does he exert this power? (Expert leadership, leading by example, transactional leadership).
Integrated approach, new leadership	1980s	Integrates various approaches, more attention for emotional and symbolic aspects. For example, charismatic leadership and transformational leadership.
Institutional leadership	1990s	Organizations can become institutions that represent public values. Institutional leadership focuses on the protection and development of values in organizations.
Shared/distributed leadership	Early 21st century	Collective models of leadership, particularly applicable to complex social problems which involve several actors and stakeholders. Emphasizes negotiation and learning instead of decision-making and implementation.

Table 1 – *Overview of leadership theories.*[2-5]

Medical leadership in the Netherlands

We mapped the various Dutch perspectives on medical leadership using discourse analysis. By collecting, coding and categorizing interviews and popular scientific articles on medical leadership in March 2015 (see references [6-17]), we identified three different perspectives on medical leadership. These can be broadly divided into (1) administrative leadership, (2) organizational leadership, and (3) daily leadership by all doctors.

1 **Taking the lead: medical leadership as a (defensive) administrative action.**
Since medical leadership was introduced in the Netherlands, doctors have been using the concept as a means of retrieving their autonomy on a national level. Doctors felt that they were losing their key position to non-medical policy-makers with regards to the organization of health care. By taking the lead again, doctors could participate in the early stages of the discussion. And if they did not? Then 'others' will set the agenda

"With medical leadership, you can turn yourself from a plaything into a player."
– Arts in Spe, May 2014

This quote illustrates the defensive attitude of this first perspective, as do the titles of the typical articles on the topic: *"Wanted: policy-making doctors"*, *"Doctors in the lead, but how?"* and *"Take control"*.

2 **Developing into a medical leader: influence in and through the organization.**
Medical leadership is also portrayed as an aspect of career development, training young and talented physicians for designated leadership roles on the departmental or hospital level. To become a medical leader, an elite club of people must become proficient in the required qualities and skills. Many courses, both national and international, are answering this demand. Notably, these articles focus on the doctor's interests. Gaining more knowledge of organizational subjects, they say, would enable doctors to fight for their own interests and for those of their profession. This knowledge would teach them to think strategically and make the right career choices.

3 **Daily practice: medical leadership for all doctors.**
The importance of medical leadership in the daily work of all physicians has been gaining ground recently. This notion is also called clinical - or distributed leadership. Here, clearly the interests of the patients are central. All doctors have leadership responsibilities and should therefore be equipped with the necessary knowledge and skills.

In analysing these perspectives, several items catch the attention. First, for medical professionals, medical leadership seems a defensive response to changes in health care. By demonstrating their medical leadership, doctors could once again shut out the managerial world. This would let doctors get back in the lead, literally. In addition, the articles hardly mention the word 'patient'. Finally, most attention goes to the first and second perspectives (taking back the lead and training for designated leadership roles), while the importance of medical leadership for *all* doctors remains under-valued.

The importance of medical leadership for all doctors

Over the last year, there has been a trend towards the third perspective, medical leadership as a proactive attitude with which doctors learn how to use their knowledge and skills to promote the quality of care for patients, society and themselves.[18-20] Having this attitude enables junior doctors to think beyond the confines of their own offices to respond properly to the on-going changes they face. This perspective has the potential to set patients at the centre of the stage. To truly enter this next phase of medical leadership discourse, the awareness of this pivotal role should be complemented with a positive attitude to the organizational aspects of providing health care. Instead of viewing medical leadership as an annoying extra task, it must be seen as part of the work of all physicians. Therefore, the starting point of medical leadership cannot be limited to junior doctors. Organizational skills are traditionally not seen as a part of the medical (training) culture in a profession that transfers knowledge and skills through a master-apprentice relationship. For young doctors this means that added to the usual obstacles encountered when trying to bring about change, they also have to convince their teachers of the importance and value of their ideas.

CONCLUSION

The Netherlands has focused mainly on medical leadership as defensive, hierarchical actions that would enable physicians to be back in the lead again. However, if the profession paid more attention to the proactive approach of the third perspective – medical leadership for all doctors – then physicians would be committed to engage in continual improvement to patient care, the social environment and themselves. We believe this message is also important for medical education outside the Netherlands. Many countries are currently giving meaning to medical leadership, especially now the CanMEDS 'manager' role has changed to 'leader'. In these discussions, it is important to realize that medical leadership is not something doctors can 'take'; we already have it. All doctors, young and old, should feel engaged in the organization of health care, day in, day out. Only with this attitude can the young doctor in the case presented above feel confident enough to express his observations and ideas. But then, to achieve true change in health care, the environment should be open to and appreciative of his ideas and provide the right support. And that also takes leadership.

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Chapter three

Institutional constraints on (and opportunities for) developing medical leadership

Judith Voogt & Mirko Noordegraaf. Under review

ABSTRACT

MEDICAL leadership is a popular and important topic in medical education. By focusing on medical leadership, physicians can be 'proactively' involved in envisioning and improving healthcare. However, when designing medical leadership education, it is important to consider the health care context. An often hierarchic and highly standardized context, not always welcoming and fostering proactive individuals. This paper uses institutional theory to identify contextual constraints on medical leadership development. Institutional theory suggests that behaviour of individuals is 'embedded' in institutional contexts, at least in three distinctive ways: regulative, normative and cultural-cognitive patterns, which direct and constrain behaviour. This paper shows that these patterns/constraints imply that medical leadership (1) does not automatically work, (2) does not automatically fit, and (3) is not automatically desired. Rules and (financial) regulations temper creativity, innovation and tailored healthcare. The (traditional) 'way we work around here' is difficult to relate to conversations about managerial issues, patient-centred care and quality improvements, both formally (physical arrangement of buildings or rooms) and informally (knowledge-centred medical identity and discourse). Moreover, the medical culture does not – yet – appreciate and foster critical minds. These constraints, however, also provide opportunities to design 'context-sensitive' medical leadership education, by creating more leeway in financial structures, deregulating protocols and checklists, and promoting proactivity as desirable behaviour. Institutional theory opens the door to new approaches to medical leadership development and can help to form a new generation of more proactive medical leaders.

INTRODUCTION

Medical leadership is an increasingly popular topic in the field of medicine and medical education. Through medical leadership, physicians should "become more actively involved in the planning, delivery and transformation of health services" and "[…] engage with others to contribute to a vision of a high-quality healthcare system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers." (Dath et al., 2015; NHS Institute for Innovation and Improvement and Academy of Medical Royal Colleges 2010).

Roughly, there are two ways to classify medical leadership: physicians holding mid-level or high ranking organizational positions in hospitals (e.g. physician managers, physician CEO's), and medical leadership as an intrinsic component of physicians' daily professional work (Berghout et al., 2017; Voogt et al., 2015). The latter stresses that all physicians might be uniquely positioned to promote and practice change. They work at the intersection of patients, managers and other healthcare professionals and routinely encounter many problems within the systems they work. Additionally, they have the professional authority to use their day-to-day experiences as input for healthcare improvement (Lemer and Moss, 2013a). Physicians are thus considered to be ideal candidates to become 'change agents' (Bevan, 2013; Lemer and Moss, 2013a).

A recent paper from the editor-in-chief of *Academic Medicine* stressed an important tension when implementing this new role for physicians. He stated that "the education of students about leadership can run up against contradictory messages about expected student behaviour when clinical teams stress passivity and compliance with authoritarian rules." Moreover, the paper noticed that most leadership development programs focus on skill- and knowledge-building of individuals, or experiences aimed at interpersonal dynamic and team management (Sklar, 2018). This editorial shows where medical leadership education runs short: medical education overlooks the *context* in which (mostly junior) physicians have to become and act as medical leaders. This lowers the possibility that physicians will actually adopt this leadership role and behave proactively (Frese and Fay, 2001). Worse even, behaving proactively in an environment that is not open to this type of behaviour could cause proactive physicians to be perceived as tiring, troublemakers or even 'a pain in the butt'(Bevan, 2013; Frese and Fay, 2001).

How can we foster medical leadership within the medical context? What are potential pitfalls and opportunities? In this paper we proceed from Sklar's call for 'context-sensitive' medical leadership research and education, and we go beyond this call – mainly by giving specific meaning to the notion of 'context'. We see context not so much as medical, team and/or organizational context, but as *institutional* context. This deviates from context as described in medical (education) literature. We use so-called institutional theory to understand why medical leadership ambitions are difficult to realize (Scott, 2001a). By looking at medical leadership development through an institutional lens, this paper will not only identify promises but also pitfalls for medical leadership scholarship and education. We use these pitfalls to seek additional opportunities for realizing leadership in daily medical practices.

Institutions and (medical) agency

What do we mean when talking about 'institutional context' and 'institutions'? Institutions are not the same as organizations. They are social frameworks that regulate and influence our behaviour. Scott defines institutions as *'multifaceted, durable social structures, made up of symbolic elements, social activities, and material resources'* (Scott, 2001a). Examples of institutions are governance structures, social arrangements, norms and rules, rituals and routines (March and Olsen, 1989).

Institutional theory suggests that all social and individual behaviour is influenced by institutional contexts. This is called 'embeddedness'. Individuals have some leeway to act – for instance as leaders – but their behaviour is also restricted by social rules, norms and routines (March and Olsen, 1989). This is helpful, for various reasons: social rules provide stability and meaning, and make sure that individuals can relate to others. When introducing new (leadership) behaviours such as speaking up, seeking collaboration with other professionals or introducing an innovative work method, we have to take this embeddedness into account. In institutional theory the notion of active behaviour of individuals is seen as 'agency'. Medical leadership can then be viewed as a form of 'embedded agency'.

In case of medical leadership, such agency is linked to the notion of 'proactivity', also described in literature on 'professional capability', a form of proactive coping of public (frontline) professionals (Aspinwall and Taylor, 1997; Greenglass et al., 1999; Greenglass and Fiksenbaum, 2009; Schwarzer, 2000). This implies that professionals do not merely respond to stimuli, but act before stimuli happen and/or to prevent stimuli from happening. They use their professional power to alter situations, for instance by voicing or participating in public debates (van Loon et al. 2018). More practically this means they see things coming, take initiative and perform such actions so that a more desired state is reached. Even more practically: suppose a young physician knows that an older physician is neglecting certain hygiene rules, which negatively affects health care safety, he/she shows leadership when he/she takes initiative to speak up and to make such neglect explicit. Another, practical example of proactive participation is a physician who takes initiative to adapt work schedules on his/her ward (e.g., timing of rounds, multi-disciplinary meetings and family visits) because he/she notices that holding on to long-ago defined time schedules works against preferences and well-being of patients, physicians and nurses. Critically evaluating new (costly) therapies and making sustainable and cost-conscious decisions are also illustrations of future oriented leadership behavior.

Medical leadership is in recent years promoted by competency-based medical training programs worldwide (LEADS Canada, 2016; NHS Institute for Innovation and Improvement and Academy of Medical Royal Colleges, 2010; Platform Medisch Leiderschap and Universiteit Twente, 2015; Sebastian et al., 2014) and 'leader' is since 2015 one of the seven core 'roles' in the established CanMEDS competency framework (Dath et al., 2015). Since the introduction of the medical leadership concept, there has been confusion about its definition, content, target audience and ways to develop it. It is regarded as undertheorized and ambiguous by scholars (e.g. Berghout et al., 2017; Howieson and Thiagarajah, 2011; Parker, 2000; Voogt et al., 2015). Despite - or perhaps because of - this ambiguity it is enthusiastically endorsed by medical managers and educators (Clark, 2012; Straus et al., 2013; Warren and Carnall, 2011). This reveals a potential pitfall of the concept as described in medical leadership literature: medical leadership is not a neutral concept, but it has a performative component which constitutes new professional identities (Berghout et al., 2018). In this paper we focus on the practical, behavioural aspects of medical leadership in the context of medical education.

In medical education, medical leadership refers to skills, competencies, activities and traits that physicians need to organize and optimize clinical work. For example, developing networks, managing recourses and people, critically evaluating and identifying contexts for change. Physicians as medical leaders are expected to become *actively* involved in planning, delivery and transformation of health services. This can be acted on different levels: at the frontline service level (early career), mid-level management (continuing practice) and institutional level (Mountford and Webb, 2009). Depending on the level (and career stage) at which medical leadership is acted, there is an emphasis on different skills, traits and competencies. At the service level personal development, proactive behaviors and collaboration receive more attention, while at the institutional level there is a focus on developing vision and changing systems. This is only a general distinction, as medical leadership is operationalized in many different ways.

Although there are many perspectives on medical leadership (Berghout et al., 2017; Voogt et al., 2015), in this paper we focus on the proactivity component and see medical leadership as *'proactively taking initiative in daily processes of frontline service delivery*'. We especially focus on 'addressing things' and 'making things explicit'. We do so by understanding whether and how physicians *critically approach* the existing order, work on new things and rely on voice to address something in

specific circumstances. Physicians have an unique view of health service delivery and its inefficiencies (Roueche and Hewitt, 2011). Raising their concerns effectively could provide starting points to improve health care delivery (Lemer and Moss, 2013b; Till and McKimm, 2016). The reverse behaviour would be when they accept the status quo, remain *silent*, and do not respond or react to a critical or worrisome situation that could have been prevented from happening (Dixon-Woods et al., 2018). Also, in non-urgent instances quality domains such as effectiveness, timeliness and patient-centeredness could be improved if they voice their suggestion, instead of *waiting it out*. All of this is done to deliver high-quality care for patients, taking into account personal needs and societal context (including e.g. increasing safety demands).

In order to understand whether and how medical agency is constrained or activated, and whether medical residents are proactive or silent, we focus on the social norms that guide medical behaviour. Institutional theory enables us to understand which dimensions of the social contexts in which they act affect how and why they act as they do. This also enables us to focus on opportunities for proactive behaviour, if the institutional constraints are strong. Institutions influence professional behaviour in three distinctive ways. Scott speaks about three 'pillars': the regulative, normative and cultural-cognitive pillar (Scott, 2001b). In the following paragraph we will elaborate each of these pillars and show how each of these social patterns affect medical proactive leadership behaviour of physicians.

Three institutional pillars

Regulative pillar. An important feature of institutions is that they regulate and constrain behaviour. According to the 'regulative pillar' they do so by means of rule-setting, monitoring and sanctioning activities. Institutions can establish rules, check whether people conform to them and reward or punish people in order to influence their (future) behaviour. These sanctioning activities can be carried out informally – such as shaming or rejecting individuals or groups – or formally, usually linked to special actors such as inspections, controllers, courts and the police. An example of regulative influences in the medical profession are the rules and protocols that are imposed by regulating institutions such as the ministry of Health, or the health inspectorate, or a disciplinary court. The regulative pillar of institutions thus provides a stable system of formal and informal rules that are backed by monitoring and sanctioning activities. These are often used to improve (medical) performances (Noordegraaf, 2015).

Normative pillar. The normative layer of institutions guide behaviour through norms and values. This layer focusses on 'appropriate' behaviour. Scott views values as 'conceptions of the preferred or the desirable'. March & Olsen speak about a 'logic of appropriateness' that guides behaviour. Norms specify how things should be done and 'define legitimate means to pursue valued ends', in the words of Scott. In this way, normative systems define objectives and goals (e.g., winning the football match or curing a patient) and also specify appropriate ways to pursue them (e.g., rules of the game, conceptions of good medical practice).

> *"If institutions are the rules of the game, organizations are the players who play the game according to the rules"* – North (Scott, 2001a)

Accreditation bodies such as the Joint Commission and Qmentum are examples of normative institutions that have a big influence on healthcare organizations. They set quality standards for healthcare and provide procedures, programs and routines that help organizations to achieve these goals. Another example is the notion of competency based medical education (more specifically the CanMEDS competency framework and its spin-offs (Frank and Danoff, 2007) that set the standards for what we believe makes an excellent physician. This medical education philosophy provides toolboxes, guidelines and training modules that guide educators and physicians to meet these standards. These examples differ from regulative influences because they are not obligatory. They are not imposed by government or courts but are adopted by organizations because of ambitions and aspirations. However, since both accreditation as competency-based education are turned into good conduct, they can become perceived as regulative phenomena.

There are some values and norms that only apply to selected actors or positions. For example, making an incision into an unconscious individual or sentencing a person to death. These special values and norms are linked to roles: appropriate goals and activities for *particular* individuals or *specified* social positions. Medical professionals – but also judges and accountants – have such roles and therefore enjoy a special status in society. They are part of a professional group that can determine its own guidelines, regulatory processes and select, train and accredit their own pupils. They function in a closed system with restricted access and possess exclusive knowledge. Professionals are considered to be the most important creators of institutions of our time (Scott, 2008). Professionals define our societal system by introducing rules, guidelines and values such as vaccination programmes, cancer screening and definitions of health and healthy eating habits.

Cultural-cognitive pillar. The cultural-cognitive pillar is embedded in the world of social scientists and anthropologists and their view on reality. It emphasizes the importance of common symbols, words, signs, gestures and frames. During our life we internalize ideas about the world around us. These internalized ideas in turn influence how we process new ideas, thoughts and actions and how we respond to them. This mostly happens in a subconscious way. This means that we take many elements of our social (medical) realities for granted (Scott, 2001b; Weick, 1995).

The medical world is filled with elements of the cultural-cognitive pillar as it is a highly socialised setting. From the start of medical school onwards, physicians-in-training are introduced to the magical world of medicine, symbolized by items such as the white coat, stethoscope and the staff of Aesculapius. Moreover, each sub-specialty has its own defining items such as the reflex hammer and cotton swabs of Neurologists, pink stethoscopes of Paediatricians, headlights of Ear Nose Throat specialists and even the tubes with lube of Gastro-Enterologists. Clerks carry many notebooks, pens and tools in their white coats, while medical specialists flaunt their expert knowledge by carrying as little as possible. Moreover, the medical slang that is characterized by its Latin words, eloquent expressions and formal interaction plays an important role in healthcare organizations. Whether you speak this language determines if you are an insider or an outsider. Compliance to these rules and languages occurs smoothly and without notice. Routines are followed because they are "the way we do things around here" and make other types of behaviour inconceivable.

Institutional constraints on medical leadership?

The three pillars or dimensions of institutional contexts affect the development and spread of medical leadership in different ways. In the next paragraphs we will offer 'exploratory evidence' on how each of these pillars constrains medical leadership behaviour in physicians. We explicitly say 'exploratory' as our analysis does not present fully developed empirical findings, but we say 'evidence' as our findings rest upon a bigger and ongoing empirical project (e.g. Voogt et al., 2016; Voogt et al., 2015). This (PhD) project focusses on medical leadership development in medical residents. More specifically, it zooms in on proactive behaviour of medical residents with regards to (improving) the organization of frontline service delivery. In this paper, we want to problematize the optimistic usage of terms like leadership on the basis of certain empirical patterns we see in our material but also elsewhere. Moreover, the main author is a young physician, so we explore with an 'ethnographic twist': backed by real-life experiences and observations, we show how the institutional pillars affect desired proactivity in day-to-day health care practices. We do not do this to reject

ambitions or criticize practices, but to learn from how things actually work and to suggest more realistic ways forward. We do so with an eye on broader developments. Professional competencies, skills, identities, and the like are increasingly reworked, often with optimistic images of the professional workers involved, whereas these workers operate in complex social and socialized worlds (Noordegraaf, 2011).
In the next paragraph we will turn the institutional constraints into starting points for possible ways out or solutions – i.e., opportunities for strengthening medical leadership in real-life contexts. But first, we explore the relations between pillars and medical behaviour. Table 1 summarizes the key elements of the institutional pillars and corresponding constraints and opportunities for (further) developing medical leadership.

Regulative constraints. The regulative pillar suggests that people behave the way they do because they feel they 'have to'. This can be observed by paying attention to behavioural incentives that flow from rules and regulations that are laid down in laws, agreements, contracts and systems. In the health care 'system', a multitude of rules and regulations has been established, combining political, organizational, managerial and occupational influences on medical behaviour. Beneath we discuss a few major influences, which amount to curbing proactivity at the level of professional action. Regulative influences dis-incentivize taking initiative and initiating new actions.

Contemporary medicine, especially evidence-based medicine, is highly regulated by *guidelines* and *protocols* (Evidence-Based Medicine Working Group, 1992; Greenhalgh et al., 2014). Instead of a case-by-case approach, physicians are expected to adhere to algorithmic protocols, top-down directives and population-based work methods. The medical leadership discourse emphasizes the importance of providing high quality care to individual patients, taking into account their personal needs and preferences. This creates a difficult position for physicians, balancing between adherence to guidelines and providing tailored medical care, especially in case of complex case (think of multi-morbidity).

A lack of time and (perceived) freedom that are a result of increased administration time also inhibits physicians to come up with new creative and/or innovative ways of working (Herzlinger, 2006). In the Netherlands, research has shown that physicians spent *forty* percent of their time on their administration tasks (de Argumentenfabriek, 2017; Skipr, n.d.). This is equivalent to two full work days per week. Work demands are notoriously high among medical professionals and they feel like the ever-increasing administration is inhibiting them from spending time with patients.

In the Netherlands a webpage called "Laat Dokters Dokteren" (Let Doctors be Doctors, inspired by the American #LetDoctorsBeDoctors) collects examples of administration tasks that are considered unnecessary or even absurd (Federatie Medisch Specialisten, 2018). Building on this knowledge, we hypothesize that tasks that are perceived as peripheral, such as leadership tasks, are even less likely to receive appropriate attention. This is reinforced by the fact that physicians must adhere to medical standards and checklists, not only established to strengthen previous mentioned evidence-based action, but to streamline and optimize medical treatment and medical processes. This might e.g. relate to improving the ways in which patients go to and from the operation theatre, with strict briefing and debriefing, or to medical decision support, backed by digital systems. Although 'voice' might – paradoxically – be a part of these checklists, for example when there can be 'time out' moments at a critical stages, these standards and checklists can also reduce the leeway to deviate from existing procedures (Kuiper, 2018). Formal systems to voice concerns can also paradoxically endorse silence, as they require 'hard' facts that have to be filled out on predefined forms that are then passed to the domain of the 'system'. A domain that – in the eyes of employees – urges for certainty and resolution, which does not correspondent well with their 'soft' concerns. Finding these 'facts of the matter' through formal mechanisms and bureaucratic remedies might create more distance, leading to information losses instead of gains (Martin et al., 2018). Moreover, surrounding social dynamics might limit the leeway to act; the medical hierarchy might work against explicitly addressing critical moments (Dixon-Woods et al., 2018; Martin et al., 2018; Schwappach and Richard, 2018).

In addition, an important regulative constraint for innovation comes from financial compensation regulations. In countries like the Netherlands, healthcare organizations receive money from health insurance companies for the care they deliver to their clients. This is part of the regulated competition reform, introduced to increase efficiency in health care. Intended as a way to increase the quality of care, health care providers only receive money for treatments that are 'state of science and practice'. However, to establish a solid evidence-base for a new treatment or diagnostic instrument usually takes many years. Hospitals that nevertheless decide to introduce a new way of working that could – for example – reduce costs or increase patient satisfaction are forced to deliver this service for free. This impedes improvements in healthcare quality (Herzlinger, 2006). Individual medical professionals are forced to use existing codes in the system to register actions, which will subsequently be funded (a payment policy based on a diagnosis-related group system, in the Netherlands called "DBC"-system)(Nederlandse Zorgautoriteit, 2018; Oostenbrink

and Rutten, 2006). In addition, they are forced to use these codes to get an optimal funding, as funding is linked to performance requirements. The introduction of the DBC-system in mental health care had unintended adverse effects on the treatment duration of patients. This reimbursement system follows a 'discontinuous discrete step function': once a provider passes a treatment duration threshold the fee is flat until a next threshold is reached. This resulted in providers treating patients longer to reach a next threshold and obtain a higher fee, resulting in a cost increase of approximately 7 to 9% (Douven et al., 2015). Reversely, one could argue that this reimbursement system dis-incentivizes physicians to proactively work on innovations that reduce treatment duration as this could result in financial losses, a side-effect which is not infrequently observed in practice.

All of this is strengthened by the fact that young physicians hardly oversee and understand the many performance and financial standards that have been established. This caused by the fact that it hardly plays a role in their formal educational programs (e.g., Berkenbosch et al., 2013; Berkenbosch et al., 2011; Dijkstra et al., 2014) as well as by the fact that are often 'kept out' of the ways in which groups of physicians deal with these requirements. We will return to this beneath.

Normative constraints. The normative pillar focusses on work norms and habits and suggests that people behave in certain ways because they feel that they 'ought to'(Scott, 2001b). Talking about taking initiative to change or renew work procedures or working methods (instead of diagnostic procedures, individual cases or diseases) is not embedded in daily routines of most physician groups. This makes it difficult to start a conversation about sustainability or cost-efficiency while discussing treatment plans of individual patients. This could even be considered 'rude' or unethical, as many physicians were trained with the assumption that costs have no place in medical decision making (Stammen et al., 2015). This is not something that can be solved by sending individuals to management courses. Rather, this calls for a change in discourse.

Providing excellent care is still at the core of physician's identities and is often linked to day to day hands-on care delivered at bedsides of patients. Managerial issues, let alone management, is still frequently referred to as 'the dark side' (Blumenthal et al., 2012). When physicians are unable to link organizational tasks and obligations to excellent patient care, they are not likely to get involved in these practices (Noordegraaf, 2011).

Moreover, physicians – especially junior physicians – are not routinely involved in board meetings, think thanks and quality-improvement teams and are therefore not stimulated to share their workplace experience and voice their opinion. Physicians work in a segmented fashion; they do not frequently speak to physicians outside their own specialty group. Multi-disciplinary meetings usually take place within a single department that focusses on a single specialty (e.g. cardiology, internal medicine) instead of transdisciplinary and case-based, crossing specialty borders. This segmentation hinders exchange of knowledge, ideas and lessons learned within and between healthcare groups and organizations (Noordegraaf et al., 2016). It reduces tendencies to take initiative and to intervene in how things normally work.

Cognitive-cultural constraints. According to the cognitive-cultural pillar people demonstrate certain behaviour because they 'want to'. Medicine is strongly influenced by the medical socialisation that is not only guided by a formal curriculum and explicit supervisory regime, but also by a 'hidden curriculum' and implicit transfer of knowledge and values (Hafferty and Franks, 1994). Most (junior) physicians aspire to become a strong and competent physician that is not bothered by his or her external environment. It is appreciated when you work tirelessly and give your all each and every day and people that "keep the trains running" are rewarded (Bevan, 2013). Speaking up about (managerial) issues could be perceived as 'complaining' or 'being lazy'. Moreover, given the prominence of hierarchy, voicing your opinion and challenging the status quo runs a high risk of being considered rude (Sklar, 2018). This is in line with literature which shows that employees who speak up and "rock the boat" are perceived as tiring, strenuous and even rebellious (Bevan, 2013; Frese and Fay, 2001; Morrison, 2011; Parker et al., 2006).

Secondly, the surroundings in which young physicians find themselves, including the physical arrangement of hospital rooms, easily constrain open dialogue. Within hospitals there is still a strong focus on individual specialties (you are either a pulmonologist, cardiologist or a paediatrician) and most hospital buildings are set up according to these categories. In many healthcare environments, moreover, junior staff is still expected to sit in the back of the room and only engage when absolutely necessary. And when they speak out, they are 'tested' (Witman et al., 2010).

Pillar	Basis of compliance	Mechanisms	Indicators	Constraints on medical leadership	Influence on medical leadership	Opportu-nities for medical leadership
Regulative	Expedience	Coercive	Rules Regulations Laws Systems	Evidence-ba-sed protocols Standards and checklists Financial regulations Performance standards	Proactivity is sanctioned	Conversation Deregulation
Normative	Social obligation	Normative	Certification Accreditation	Medical discourse Focus on excellent 'bedside' physicians Little contact with policy-makers Segmentation of physician groups and medical domains	Proactivity is disliked	'Managerial' subjects in 'medical' meetings (Junior) physicians in innovation teams
Cultural-cognitive	Taken-for-grantedness, shared under-standing	Mimetic	Common beliefs Shared logics of action	Medical hierarchy Physical arrangement hospitals and meeting rooms Accepting is perceived 'stronger' than com-plaining	Proactivity is not appreci-ated	Endorsing proactivity Role models Responsive-ness

Table 1 – *Three institutional pillars, constraints and opportunities*

Multiple constraints. In sum, even although medical leadership is perceived as important and necessary, institutional conditions – as constraints – easily work against proactive medical leadership. The complex social and organizational realities in which young physicians find themselves generate multiple constraints which are hard to deny. Medical leadership (1) does not automatically work, as it is quickly sanctioned, (2) does not automatically fit, as it is often disliked, and (3) is not automatically accepted, as it is not really appreciated within healthcare services. This is summarized in **Table 1**. We now turn to the ways in which constraints might be turned into opportunities, something which is also summarized in **Table 1**.

DISCUSSION: FROM CONSTRAINTS TO OPPORTUNITIES

This paper shows that in order to demonstrate proactive medical leadership behaviour, physicians face multiple institutional constraints. Rules and (financial) regulations temper creativity, innovation and tailored healthcare, the (traditional) 'way we work around here' is not 'made for' conversations about managerial issues and improvements, and the medical culture does not – yet – appreciate and foster critical minds.

These constraints also provide opportunities to develop medical leadership in healthcare. First, it could be beneficial to pay attention to the how (financial) rules and regulations work. When both governments and insurance companies provide more leeway for physicians and healthcare organizations to find and implement creative and/or innovative solutions, there will be less incentives to maintain the (often costly) status quo. When governments approve new work procedures that are beneficial for patients in terms of time, cost or quality, insurance companies could be more inclined to financially support these innovations. In this way physicians could implement healthcare innovations without cutting their own budgets.

Secondly, similar conversations could take place with accreditation bodies and hospital boards that impose a proliferation of checklists and protocols on physicians. A starting point for this conversation could be the shift from a *Safety-I* focus to a *Safety-II* focus that is currently gaining momentum in the field of quality and safety (Hollnagel et al., n.d.). Safety-II focusses on things that go right instead avoiding things that go wrong. This development reduces the need for protocols and checklists. Moreover, several hospitals are currently experimenting with *deregulation* by actively decreasing the number of rules and regulations that are imposed by different actors (VVAA, 2018). These efforts, including attempts to reduce the number of performance requirements, accountability standards, certificates and benchmarks, could create more space for creativity and innovation.

Third, this paper shows that the medical context is in need of new discourses that highlight the importance of conversations on managerial issues such as logistics, (financial) sustainability and patient experience. Next to talking about individual cases it would be beneficial to reflect on long term perspectives for patient groups. Discourse does not change easily or swiftly. The medical world has already taken a positive turn by embracing subjects such as 'medical leadership' in their vocabulary. Actively endorsing proactivity, involving (junior) physicians in innovation teams, and supporting role models are examples that could benefit this change. To change local discourse, healthcare organizations should identify opportunities tailored to their (normative) context.

For example, a general hospital in the Netherlands offers residents the so called 'Pearl-track' that aims for medical leadership development in early-stage physicians. Residents who enter this track are linked to a (senior) physician role model and together they participate in a committee or project on the organizational level. They receive small group training from physicians in their own hospital about hospital finance and project management. Creating such tailored and hands-on learning opportunities are promising as they are developed together with hospital staff, within the local context, to find solutions for real, local problems. Another example is the "Ponder and Improve" project that invites residents to come forward with critical (organizational) frontline experiences (Noordegraaf et al., 2016; Voogt et al., 2016). These experiences function as a starting point for small-scale quality improvement initiatives that are carried out by residents themselves. Examples of projects are keeping record of the days that IV lines are in situ to prevent infection, making new arrangements on visiting times with nurses and making sure all the medical supplies are in stock at the emergency department. Research on this project showed that residents became more aware of organizational issues, their own influence on organizing their daily practices and corresponding responsibilities. Moreover, the evaluation of a pilot study showed that it was very important how supervisors guided the Wonder and Improve project. When supervisors started to appoint project to residents this threatened their autonomy and made them feel like it was just another way to hand out chores. Whenever residents felt like it was not safe to speak up, they decided not to address the 'real' issues.

Lastly, this paper shows that it is important to pay serious attention to the potential negative consequences of introducing medical leadership. Medical leadership sounds positive and attractive, in fact too positive and attractive when it has to be turned into day-to-day reality. This can be linked to warnings on 'leaderism', i.e. overly romantic images of leadership, which have to be kept realistic and translated to professional realities (O'Reilly and Reed, 2011; Tourish 2014). Literature shows that employees who speak up are not always appreciated by their colleagues and supervisors. This puts extra stress on young physicians who are working hard to get into specialty training or who are looking for their first position as a house officer this could put extra stress on them. Moreover, research on the hidden curriculum showed us differences between work how it is taught in educational contexts and work how it is done in real life could enhance a moral decline among its learners. This negative effect of medical leadership could be temporary and part of a transition phase of the medical profession. Nevertheless, paying attention to these issues is important for both medical leadership education as well as research.

CONCLUSION

This paper highlights the constraints on and opportunities for developing medical leadership, in both education, organization and research, from an institutional perspective. Medical leadership has the potential to improve the health of patients, physicians as well as healthcare and society. The momentum for this change is occurring. But this requires *context-sensitive* educational, organizational and research action. Medical professional action is embedded, which means we do not only educate and equip individuals but have to intervene in social dynamics, at different levels of healthcare. Paving the way for a new generation of individual proactive medical leaders calls for collective action in which attractive discourse (medical leadership) is translated to practice (medical reality).

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Chapter four

Why medical residents do (and don't) speak up about organizational barriers and opportunities to improve the quality of care

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ABSTRACT

Purpose: Medical residents are valuable sources of information about the quality of frontline service delivery. In order to profit from their critical experiences, it is important that residents speak up when they have ideas, opinion or suggestions that could improve their work practices. However, speaking up can be difficult for residents. Therefore, the authors explore what helps or hinders residents to speak up about organizational barriers and opportunities for the quality their work. The findings of this study can facilitate an approach that supports speaking up.

Method: The authors conducted an exploratory qualitative interview study with 27 Dutch residents. They used Critical Incident Technique for data collection and the constant comparison method of the Qualitative Analysis Guide of Leuven (QUAGOL) for data analysis.

Results: Three types of incidents in which residents considered speaking up were described. Also, the authors identified two main considerations that influenced residents' decision to speak up: is it safe to speak up and is it likely to be effective? These considerations were influenced by personal-, team- and organizational aspects, such as open attitudes of supervisors, hierarchy, duration of clinical rotations, organization size and (vicarious) experiences.

Conclusions: This study showed that residents have a tendency towards silence when they encounter organizational barriers or opportunities to the quality of their work. Perceived effectiveness and safety are important driving and constraining forces for speaking up. The authors provide important starting points to empower medical residents to speak up and share their suggestions for change.

INTRODUCTION

Medical residents are valuable sources of information about the quality of frontline service delivery.[1–3] They encounter organizational barriers, possess knowledge on how policies are implemented and experience (in)efficiencies in existing routines. During their training program, they work in many different departments and see how higher-level decisions impact patients' health care experiences and experience good and bad practice hands on. In order to profit from these valuable experiences and increase the quality of care, it is vital that residents speak up and share their ideas,

opinions or suggestions with people who are in a position to make positive changes, such as managers and supervisors.[4] For example, by making suggestions for novel work routines, pointing out inefficiencies that cause long waiting times in out-patient clinics or identify redundancies in administrative tasks. For this reason, this study explores what helps or hinders residents to speak up about organizational barriers and opportunities to improve the quality of their work and share their suggestions for change.

Current postgraduate medical education (PGME) programs increasingly recognize that in order to adequately prepare residents for working in complex health care systems, residents need to possess knowledge and abilities related to health care finance, quality improvement, teamwork, leadership and other areas related to the science of health care delivery.[5,6] Moreover, PGME underlines the importance of proactively taking responsibility for the quality of care by speaking up about and/or engaging in health care change management, in roles such as Medical Leadership and Health Advocate.[7–9] In social sciences, speaking up about organizational issues is referred to as 'voice', which is defined as *"a promotive behavior that emphasizes expression of constructive challenge intended to improve than merely criticize. It is making innovative suggestions for change and recommending modifications to standard procedures even when others disagree"*.[10–13] Voice can be operationalized in many ways.[10,13] Previous research on speaking up by residents has mainly focused on 'problem-oriented' voice, which refers to reactively speaking up about ethical or professional patient safety threats, such as covering up error, disrespectful behavior or inadequate hand-hygiene.[14–17] In this paper we focus on 'suggestion-focused' voice, which refers to proactively making suggestions for organizational change.[18,19] A clear understanding of this phenomenon in current medical practice can facilitate both practical initiatives that encourage medical residents to speak up, and be of added value to medical education and professionalism literature, since it provides empirical knowledge on displaying organizational behavior in professional settings.

Literature on speaking up shows that employees have a natural tendency towards silence.[13,20–22] An individual's assessment of whether or not to speak up is often tacit of nature and can be seen as an equilibrium between driving forces (*what helps residents to speak up?*) and restraining forces (*what hinders residents to speak up?*).[21,23] The action to speak up or not is a product of an interaction between triggers or motivations to speak up, thoughts and beliefs about the anticipated effects of speaking up (*Will it be appreciated if I speak up? Will I get support from my peers?*) and contextual elements (e.g., local culture and resources). Speaking up about organizational barriers can be especially difficult for residents as they work in an environment that traditionally values passivity and compliance with authoritarian rules. This contradiction was recently pointed out in an editorial in Academic Medicine.[24] Residents are part of a so-called "professional group", a group of experts sharing specific standards, morals and practices.[25,26] For members of these professions, the social norms that are deemed important within this group have a large influence on the behavior of individual members. Professionals are traditionally wary of business- and management-like issues and therefore it can be challenging to engage medical professionals in organizational work, such as making suggestions for change.[27,28] Therefore, the objective of this study is to explore how residents decide on whether or not to speak up about organizational barriers and opportunities to improve the quality of their work.

METHODS

Study design

We conducted an exploratory qualitative interview study among residents using Critical Incident Technique (CIT) for data collection.[29,30] The Qualitative Analysis Guide of Leuven (QUAGOL) was used for data analysis.[31] The combination of these methods allowed us to gather both information on specific moments (critical incidents) in which residents were triggered and motivated to speak up, as well as obtain in-depth insight in their cognitions and beliefs that either helped or hindered them to speak up. This study was approved by the Netherlands Association of Medical Education (NVMO) Ethical Review Board (file number 691).

Sample

Residents were recruited based on purposeful sampling. We aimed to include residents who were enrolled in a specialty training program and doing clinical work at time of the interview. To increase maximum variation sampling, we approached residents from various specialties (surgical- and internal medicine, diagnostic and therapeutic specialties) who covered a range of postgraduate years. Moreover, we aimed to study a representative sample of male and female residents. We invited training programs within the training region of an Academic Hospital in the center of the Netherlands to participate in our research. Residents who responded positively received an information letter and informed consent form which described the research procedures and ethical considerations. We contacted residents who returned the form to plan the interview.

Data collection

Data was collected between July and October 2016 through individual face to face interviews by one researcher (JV). The interview guide was based on CIT and aimed to explore what helps or hinders a resident in a particular experience or activity, in this case instances in which residents considered to speak up about organizational barriers or opportunities to improve the quality of their work (**Appendix 1**). These critical incidents were the units of analysis, as we studied residents' beliefs, thoughts and actions that were provoked by the incidents. The first question was formulated as follows: "At the departments you have worked up till now, how did people generally deal with organizational issues that affect the quality of their work?" This question was purposely formulated in a broad sense and not specifically targeted towards participants' own actions, as a way to ease the respondents into the topic and the interviews. Next, we asked whether the residents ever decided to speak up about – or proactively tried to change – organizational barriers and opportunities during their residency program (the critical incident). To trace residents' decision-making process on whether or not they would speak up, the interviewer specifically zoomed in on the small steps from their first experience of an issue to their final decision to speak up or remain silent.

Data analysis

The interviews were recorded, transcribed verbatim and anonymized. For the analysis of the data we used QUAGOL, a tool specifically developed to guide the analysis of qualitative data combining a constant comparison approach and a process of coding and conceptualization.[31] The QUAGOL guideline fits with CIT research.[29] We conducted the analysis of the interviews in two stages. In stage one, we thoroughly prepared the coding process by several meetings in the research team. Two researchers (JV and HvR) summarized the essence of each interview in a 'narrative interview report' guided by the research objective. After four interviews, the researchers discussed differences and similarities of the reports and continued this process until fifteen of the interviews were discussed. Two exemplary interviews were discussed within the whole research team, which both confirmed preliminary insights that were found until that point and helped to discover new angles for the analysis. JV and HvR developed conceptual interview schemes (CIS) for the individual interviews. From these separate CIS we formulated an overarching CIS for all interviews, removing duplicates and combining similar concepts. We used this overarching CIS as preliminary codes in NVivo 11 (QSR international, London). In stage two, we linked each significant passage in the interviews to one of the codes. Simultaneously, we checked the quality of the concepts by examining their fit, adjusting the list in a back-and-forth fashion. Two researchers (JV and EvL) double coded three full exemplary interviews and discussed similarities and differences in their coding. This meeting confirmed the fit of the preliminary codes after which the remaining interviews were coded. Next, JV performed an across-case analysis to integrate the separate concepts and formulate an answer to the research question.

RESULTS

The 27 residents represented seven residency training programs in The Netherlands: Dermatology and Venerology (n = 2), General Practice (n = 2), Internal Medicine (n = 6), Obstetrics and Gynecology (n = 5), Ophthalmology (n = 6), Psychiatry (n = 4), Radiology (n = 2). Nineteen (70%) participants were female, which is comparable to the percentage of female residents in the Netherlands. The mean age was 31 (*SD* = 4, ranging from 26 to 48) and mean postgraduate year was 2.8 (*SD* = 1, ranging from 1 to 6). The residents gained work experience in a total number of twenty-one hospitals and thirty-nine departments.

Critical incidents and motivations for speaking up

During the interviews, the residents described three types of incidents and motivations in which they considered speaking up and make suggestions for change. Moreover, residents described several motivations to speak up that were linked to these incidents. The first – and pre-dominant – type of incidents which caused residents to speak up were *inefficient work processes* that lead to a sense of frustration. For example, complex electronic patient files, inefficient information transfers between ICT systems, malfunctioning copy machines and an abundance of warnings and errors while prescribing medication.

> *"We have a structural problem with the medical supplies and tools we have to look for during our shifts. When we have to do a consultation on another ward, then we can never find the supplies to adequately check the patient. Then we have to search through entire hospital to gather our things."*

Residents told us that these inefficiencies take up only small bits of time individually, but cause them to waste a lot of energy and precious time in clinic altogether. Residents were motivated to speak up by a sense of dissatisfaction and to improve their own work circumstances.

The second type of incidents were *inadequacies* in work procedures that *negatively affect patients' health care experiences*. For example, chronic delays in the outpatient clinic, long waiting times at the emergency department and lack of continuity of care due to the ongoing change of attending physicians.

> *"I think it is just a burden for patients when they have to wait for half an hour when this is not strictly necessary... These patients are always half an hour late because the supporting assistants are overbooked, and they just can't get it done in time."*

Residents directly experienced the frustrations, powerlessness and sometimes even anger of their patients about these inadequacies. They were motivated to speak up based on an uneasy feeling, both because of the conflict they experienced with their patient and because of their perception of poor quality of care delivered.

Thirdly, residents mentioned motivations in terms of moments in which they developed new ideas and suggestions that could enhance existing work flows. This type of motivation was mostly described at the start of an internship, when residents still had a fresh look at work processes. Some residents wanted to make a contribution to the health care system by sharing their previous experiences at other departments. This type of motivation was mostly put forward by residents who were in the second half of their specialty training program.

> *"I notice that I increasingly feel that I can make a contribution with my previous work experiences. I have worked in several hospitals and I take all the positive things I have learned with me to this health care organization. And I notice that I increasingly like to influence organizational processes."*

These residents developed vision and were eager to share this with their team. The motivation behind this voice opportunity was both in favor of their organization as well as themselves, as they wanted to become competent in (change) management because they thought they would need this in the future.

We found that the first type of incident was most common in the interviews. There was an emphasis on voice opportunities that covered practical, micro-level issues in operational processes and hardly touched the departmental- or organizational level. A few residents noted that they never attended department meetings in which staff discussed issues that were relevant at tactical and strategic level in their department or organization. Therefore, they were not aware of these issues. In the course of the interviews, we asked residents whether they had ever attended such meetings. Most residents replied that this meeting is 'off-limits' some residents experienced a 'sense of mystery' surrounding the meetings. It felt like they were the place where 'it really happened'. One resident described that every once in a while, residents could participate in staff meetings, but had to leave when financial issues were discussed. Another resident mentioned that their department sometimes had 'resident-proof' staff meetings in which only a selection of the topics was discussed.

To speak up or not to speak up?

Although we explicitly asked for examples of situations in which the residents decided to speak up, residents mostly talked about instances in which they had decided to remain silent. Residents frequently described situations in which they decided to passively 'wait it out' and refrain from voice. The interviews showed two main categories of considerations that were important for residents when considering whether or not they would speak up: 'Is it *effective* to speak up?' and 'Is it *safe* to speak up?' (**Table 1**). These two main judgments – in this study referred to as *efficacy calculus and safety calculus* – were part of a cost-benefit trade-off residents experienced as they considered speaking up. Within these categories, the aspects that both helped or hindered residents operated at various levels, such as thoughts, beliefs and implicit theories at the personal level. Moreover, contextual influences such as organizational structure or local culture operated at the organizational level.

	Efficacy calculus "Is it futile to speak up?"	Safety calculus "Is it safe to speak up?
Inhibitors	• Short clinical rotations • Lack of personal resources (time and/or energy) • Seeing no other options • Negative vicarious experience, socialization ('things never change around here') • Lack of overview: not knowing who to contact or where to begin	• Cognition that speaking up is the same as complaining; wanting to keep up your image of a hard-working resident • Perceived negative influence on job opportunity (troublemaker label) • Perceived negative influence on colleagues • Negative (vicarious) experience with speaking up
Drivers	• Small teams, compact organization • Strong network (know who to contact) • Joint meetings with medical and non-medical staff • Being invited to an existing project • Positive experience: realizing things actually CAN change	• Open, proactive attitude supervisor • Non-hierarchical organization • Work experience; learn that there are alternative solutions, confidence in own ideas • Having a 'strong case' (objective evidence) • Back up from colleagues

Table 1 – *Inhibitors and drivers for medical residents (N=27) to speak up about organizational barriers and opportunities for the quality of their work, University Medical Center Utrecht, the Netherlands, 2016.*

What hinders residents to speak up?

Efficacy calculus. As illustrated by quotes in **Table 2**, residents described several contextual features that made it feel futile to speak up and that made them feel like it would be better to 'choose their battles', 'do their time' and 'endure' the status quo. Several residents pointed out that the short length of each rotation, usually a couple of months, made it seem unfeasible to bring about change. Some residents pointed out that they already experienced difficulty in maintaining a healthy work life balance. In their view, speaking up, and especially engaging in quality improvement action would increase their workload by an unknown amount of work, for an undetermined amount of time. Also, their perceptions of efficacy decreased due to colleagues who told them that 'things never change around here' so they felt like they could better not waste their energy trying. A few residents did not find any alternative solutions to their problems beforehand and decided that speaking up would therefore not be beneficial.

Safety calculus. During the interviews, many residents pointed out that speaking up could be risky and therefore they learned to keep quiet. They were afraid that speaking up about issues – especially regarding work load – would negatively influence their image of a strong, hard-working resident who does not 'complain'. They did not want to be considered weaker than their predecessor who had endured the same work circumstances. Some residents were scared to be labeled a troublemaker and thought speaking up could negatively influence their job opportunities. On issues concerning work load, some residents were also scared that their colleagues were the ones who had to fix the problem. They did not want to burden them with their own troubles.

	Speaking up inhibitors	Representative quote
Efficacy calculus	**Short clinical rotations**	• Each time you start [an internship] with a positive and enthusiastic mindset and after two months you know, alright, this is realistic and this isn't so I will accept it and I will endure it. • The internships take four months, so after a while you start thinking: I can endure this for another month and then this internship will be over.
	Lack of personal resources (time and/or energy)	• I think I slowly became less proactive, because I have the feeling it takes too much energy while it's not productive anyway. So I started to let things go. • You have to invest time and energy, next to all the other things you are already doing. And I often notice that these projects are never-ending … You know for a fact that will take a lot of time and energy, while the outcome is uncertain.
	Seeing no other options	• I think you implicitly think, everybody does it, or we just have to do it like this. There does not seem to be a solution. So quickly you think, when you start thinking about the alternatives, you find that there are no alternatives. So, we just keep going
	Negative (vicarious) experience, socialization.	• I always had the feeling 'it doesn't matter whether I make a fuss about it or not, you just have to play along and adjust to the circumstances. Don't be too annoyed and make the best of it.
	Lack of overview: not knowing who to contact or where to begin	• I feel like, especially because the department it so large, as a resident you don't have any influence on how things are organized. Things are the way they are for years now and I don't have the illusion that I can come in here and change things • But you lack overview, you can't see the bigger picture. That makes it difficult to coordinate, because every person involved participates at a different layer.
Safety calculus	**Cognition that speaking up is the same as complaining; wanting to keep up your image of a hard-working resident**	• And I know a lot of residents who also experienced a lot of difficulty with it, but because they were scared to be labelled as someone who is not motivated, lazy or weak, someone who can't handle it, they just sat their time and because the internship only takes a year, they started thinking: just a few months and then I'm done, then it is over. Then I'll still be viewed as the hard-working, never-complaining resident. That is the reason why it was never put on the agenda and that 'waiting it out' attitude shows me that you experience a threshold.
	Perceived negative influence on job opportunity (troublemaker label)	• I think that is an important issue for residents, I will keep calm and quiet because then they will not find me annoying and that will improve my chances to find a job later on.
	Perceived negative influence on colleagues	• It is culture. I think that 'specialty x' has a very open and relaxed climate. A very nice medical educator, et cetera. But you kind of go along in a group and you feel, you think: if I don't do it, then somebody else has to. Solidarity. You don't want that somebody else has to fix it for you, because bottom line, that is what it comes down to: if I don't do it, it won't be the supervisor who will take over, no, it will be one of the other residents."
	Negative (vicarious) experience with speaking up	• The current group of residents has – under my supervision as a member of the resident board – brought it up. And something did change, eventually". …. "But now the whole group of residents is perceived as weak, 'you can't handle it'. And that is also how they talk about them. And that is something I regret, because that does not stimulate us to bring forward other issues in the future. "

Table 2 – *Representative quotes that illustrate inhibitors for medical residents (N=27) to speak up about organizational barriers and opportunities for the quality of their work, University Medical Center Utrecht, the Netherlands, 2016.*

What helps residents to speak up?

Efficacy calculus. Residents described that working in small-scale organizations and teams helped them to share their ideas or suggestions (**Table 3**). They felt that it was easier to come forward with ideas when they had an overview of their organization and knew most of their (also managerial) colleagues. Residents felt especially inclined to share their suggestions when there was a joint meeting which all of their colleagues (medical and non-medical) attended. A need for 'short lines of communication' was often-expressed. Several residents described academic hospitals as large, unwieldy, bureaucratic organizations in which they had to cross a lot of organizational layers before they could actually (start to) change something. Being actively invited to share their suggestions for change helped these residents to speak up. This made them feel heard, taken seriously and a valuable part of the team. An important facilitator for speaking up was a positive experience with speaking up and attempts to change the status quo. Experiencing that thing actually could change empowered them to speak up more often.

Safety calculus. Several of the residents mentioned that the open attitude of their supervisor was very important to their decision to speak up. A non-hierarchical atmosphere in which their supervisors made them feel like they could address any topic was beneficial. Residents with supervisors who were open to change, who made them feel safe or who thought along about organizational issues were more inclined to speak up. Experiencing that colleagues were not humiliated or disciplined when they spoke up encouraged some residents to come forward with ideas themselves. A few of the senior residents who already gained several years of work experience felt more inclined to speak up because they felt confident that their ideas were credible, instead of just 'an opinion'. Residents also mentioned that creating 'a network of allies' boosted their confidence. Residents used strategic terminology to describe how this helped them. They used phrases like 'strengthening your position', 'creating support', and 'going to your supervisors 'en masse''. They described strategies to create more body to their 'complaint' or gathered evidence that could support their claim. Also, external inspection of the residency training program was considered a window of opportunity to address issues.

	Speaking up drivers	Representative quote
Efficacy calculus	**Small teams, compact organization**	• While in general hospitals you participate in most meetings and you have more of an overview. This makes it way easier to bring your ideas forward in the right place." • You know each other's faces, I think. And you all have passion for a small common cause, so everyone feels responsible for what happens. And you know each other so it is easier to address each other, I think. In bigger organizations you are just a small fish in a big pond. • In a general hospital the residency team is much smaller. Then it is easier to convey and have a meeting. There is only one hand-over in the morning and after the hand-over people will stick around and have coffee. That is a moment where you can talk to each other.
	Strong network (know who to contact)	I knew all the supervisors and all the nurses, which makes you, I think, more proactive from the start.
	Being invited to share your suggestion or join a project	• I thought it was really nice that we got the opportunity last Wednesday to discuss these issues. Because I was frustrated about it for a long time now, but I never said anything about it. I thought it was really nice that they offered us the opportunity to do so. • I notice around me that a lot of the residents feel dedication, but for some residents this is more effectuated than others. And I think that when you are actively invited you also feel more responsible for change. Especially if you notice that people listen to you and things actually change."
	Positive previous experience	• [after a positive experience with changing time slots on the outpatient clinic] "For the first time in my working life I had the idea 'O.. but some things really CAN change'..... And if I could describe my job satisfaction, then it went up from a 6 to a 10."
	Open, proactive attitude supervisor	• Well.. it is more the way.. yes it is the way how he is. He is really approachable and he really thinks along. That might relate to the fact that you really feel listened to... and that you are safe. He will never just say "that's stupid".
Safety calculus	**Non-hierarchical organization**	• It's a small-scale organization, the threshold is lower. I was at the same level as my supervisor. I was the only resident and if I wasn't there my supervisor would do my job.
	Work experience; learn that there are alternative solutions, confidence in own ideas	• Because of the work experience I gained in another hospital I can state with more confidence: this is not going well, and this could be improved because I know from another department that I could be done better. I am building up confidence in these matters. . because I know I am not talking any nonsense.
	Having a 'strong case' (objective evidence)	• We gathered more information about the rules and regulations and called some other hospitals, talked to colleagues over there, asked how things are done over there..... And then we figured it out ourselves and made a proposal that we checked with our supervisors and our medical educator first and said, well this is a better proposal according to the law.
	Back up from colleagues	• When something was up, you would first discuss it during lunch with your colleagues and then you would take these issues to your supervisor 'en masse' so you could make a strong case that it would have to change." • First I discuss it with other residents: "do you also think..", this way it wouldn't be a 'one man crusade'.

Table 3 – *Representative quotes that illustrate drivers for medical residents (N=27) to speak up about organizational barriers and opportunities for the quality of their work, University Medical Center Utrecht, the Netherlands, 2016.*

This qualitative study shows that speaking up about organizational barriers and opportunities for the quality of their work is not self-evident for medical residents. Our findings indicate that residents in this study experience a threshold to speak up and needed strong arguments to cross this threshold. Before speaking up, they first considered whether it was safe and/or whether it would be effective. This is closely related to the trade-offs described in research on speaking up about safety concerns.[15,16,32] We did not expect this close parallel between our findings and the results of these previous studies, as we expected that speaking up about organizational barriers might feel less 'dangerous' compared to speaking up about professionalism- and safety-related issues. Apparently, speaking up is a difficult task for residents as such, regardless of the subject.

Perceived safety and effectiveness of voice behavior are frequently mentioned in studies about employee voice in organizations.[10–13,20,21,33] Such studies often focus on beliefs about self and the environment that are dominant in established behavioral theories.[34–36] A possible explanation for the importance of perceived safety and effectiveness for medical residents is the nature of the medical profession: a highly socialized and hierarchical environment in which residents have to deal with a high work load. Residents are highly dependent on their supervisors as they are trained in an apprenticeship model, this makes their opinion and approval extra important. Moreover, striking the right balance between their work and private lives has been proven difficult for residents, given the high levels of burn-out reported in literature.[37–39] For these reasons, a culturally dangerous and potentially time-demanding conduct as speaking up does not come naturally. Our findings build on existing knowledge on speaking up and voice and provide empirical evidence on which contextual factors influence safety and efficacy judgments of medical residents.

Our results showed that residents mainly focused on micro-level issues that improved their own work circumstances and less on issues on the level of the patient, department or organization. This has several potential explanations. First, the Concerns Based Adoption Model, originally developed for teachers, globally depicts learning as a development process with three consecutive stages: (1) concerns about self, (2) concerns about tasks/situations, (3) concerns about impact on others.[40,41] From this view, it is understandable that residents – as early stage learners - have a tendency to focus on themselves and their own problems rather than their environment. An emphasis on own work processes could also be explained from the professionalism literature. Traditionally, professionals such as physicians focus on individual case treatment ('professional logic') instead of the organization of work ('managerial logic').[25,42,43] Although current developments in professionalism literature describe that the managerial logic becomes more and more embedded in the professional logic[44], this study shows that residents still tend to focus on (work) processes close to themselves and their patients.

Limitations

Our study has a several limitations. First, we interviewed twenty-seven residents from the same training district which could limit the generalizability of our results. The residents had gained work experience across the Netherlands (twenty-one different hospitals and thirty-nine departments), which lowered the possibility of our results reflecting the impact of a single hospital. Second, the first author was trained as a physician herself, which allowed her to quickly build 'rapport' with the participants and to stay close to their experiences. However, it could also have limited her observations. For this reason, JV analyzed the interviews together with independent research assistants from the department of Organizational Sciences at Utrecht University, who contributed an outsiders' perspective to the analyses. Moreover, the results were interpreted by a cross-disciplinary research team which combined expertise from public management, organizational sciences, quality and safety, medical humanities and medicine.

Implications

In order to profit from the frontline experiences of residents to advance the quality of health care, it is important to view speaking up as a complex task. It is complex as it is influenced by different types of cognitions and beliefs that are deeply rooted in medical culture, which in turn are influenced by contextual elements such as organizational structure, opportunities and local values.[21] In order to stimulate residents to share their suggestions, training programs and healthcare organizations should not only focus on providing residents with knowledge and skills, but take a holistic approach and pay attention to the system in which residents have to speak up. Hereby making sure that residents feel that it is safe and effective to speak up. When this is overlooked, behavior as taught and behavior as expected are worlds apart and healthcare organizations run the risk to stifle their residents as important resources for quality improvement. In **Box 1** we provide five recommendations for health care organizations based on our study.

Helping residents to speak up could eventually increase residents' well-being, as literature describes that positive voice experiences create a sense of control among

employees, which is linked to increase employee well-being.[33,36,45–47] Speaking up has the potential to act like a double-edged sword for medical residents and the organizations in which they work. Future research could examine whether and how speaking up and well-being are related. Moreover, the opinions and actions of supervisors had a considerable influence on residents' decision on whether or not to speak up. The importance of supervisor support, or at least approval, for speaking up was an important theme in the interviews. For this reason, it would be insightful to explore the perceptions of supervisors on speaking up by residents. Finally, in this study we present *triggers*, e.g. critical incidents and *cognitions* on whether or not to speak up as separate entities. We recognize that certain triggers could in fact be linked to certain thought-processes. For instance, speaking up about work load could be more strongly inhibited by safety concerns than by concerns about effectiveness. Connecting organizational incidents to typical thought-processes could be an interesting topic for future research.

Box 1. Recommendations to empower medical residents to speak up

1 **Actively invite residents to provide input or engage in organizational change.**
This can be either in formal feedback structures such as evaluation moments and educational initiatives on quality improvement or in informal hallway conversations. This both reduces fear of speaking up (it is desired behavior) and at the same time enhances self-efficacy beliefs of residents.

2 **Develop an open attitude towards suggestions of residents**
An open attitude of supervisors can catalyze voice behavior in residents. This creates a safe voice climate for residents come forward with ideas. When residents perceive that it is important and valued to engage in these issues, they will be keener to participate. Be aware of the implicit cognitions (e.g. beliefs, perceptions, thoughts) residents hold concerning speaking up (e.g. "I do not want to complain").

3 **Invite residents in staff meetings in which managerial issues are discussed**
Inviting residents to staff meetings gives them an overview of important organizational issues and at the same time actively invites them to think along. This can increase residents' sense of responsibility towards team issues and makes them feel more like a part of the team. Moreover, it can lower their threshold to engage in change issues because they can make a better estimation of the time it will take and who they could contact to make it successful.

4 **Do not automatically expect that the resident who speaks up should be the one that fixes the problem**
By not automatically assigning an improvement project to a resident who speaks up, the threshold is lowered to share suggestions for change. This way also residents who are struggling with their workload will be inclined to share their suggestions for change.

5 **Create short lines of communication**
To increase efficacy beliefs of residents and to make it more feasible for residents to get their ideas where they can make a difference, it could be beneficial to appoint someone who can help residents in making the first steps. This is especially true for large hospitals, in which many residents felt lost.

Box 1 – *Recommendations to empower medical residents to speak up about organizational barriers and opportunities for the quality of their work, based on the findings of this study, University Medical Center Utrecht, the Netherlands, 2016.*

This study shows that residents have a tendency towards silence when they encounter organizational barriers to health care quality. Perceived effectiveness and safety are important driving and constraining forces to either inhibit or motivate residents to speak up. The aspects that influence this decision that are put forward in this study could be important starting points for residency programs and health care organizations to empower residents to speak up and share their valuable frontline experiences.

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Appendix 1. Interview Guide

Age:
Gender:
Postgraduate Year:
Work experience:
Hospital:
Specialty:
Study-ID:
Extra-curricular activities:

Opening question: At the departments you have worked up till now, how did people generally deal with issues that affect the quality of work?

Speaking up: Did you ever speak up about work related issues that affect the quality of your work during your residency training program?

- Describe situation: what happened?
- How did you go about it? (keep asking for details, how did you feel, what did you think?)
- Describe circumstances: was it something you came up with yourself, did someone ask you for your opinion?
- Did something eventually change?
- Why did it go well / didn't it go well?
- Did you try to change this yourself? Did you get help? Describe situation

Background questions (end of interview): If you could change something about your daily work practices, what would that be? Would you describe yourself as proactive? And compared to your colleagues? Does your residency training program pay attention to organization/leadership skills?

Chapter five

Speaking up, support, control and work engagement of medical residents. A structural equation modelling analysis

Voogt JJ, Taris TW, van Rensen ELJ, Schneider MME, Noordegraaf M & van der Schaaf MF.
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ABSTRACT

Purpose. Medical residents can play a key role in improving health care quality by speaking up and giving suggestions for improvement. However, previous research on speaking up by medical residents has shown that speaking up is difficult for residents. This study explored: 1) whether two main aspects of medical residents' work context, i.e., *job control* and *supervisor support*, are associated with speaking up by medical residents and 2) whether these associations differ for in versus outside hospital settings.

Method. Speaking up was operationalized and measured as voice behavior. Structural Equation Modelling using a cross-sectional survey design was used to identify and test factors for speaking up and to compare hospital settings.

Results. 499 medical residents in the Netherlands participated in the study. Correlational analysis showed significant positive associations between support and control with voice behavior. The authors assumed that the associations between support and control on the one hand and voice on the other hand would be partially mediated by engagement. This partial mediation model fitted out data best, but showed no association between support and voice. However, multi-group analysis showed that for residents in hospital settings, support *is* associated with voice behavior. For residents outside hospital settings, control was more important. Engagement mediated the effect of control and support outside hospital settings, but not for hospital residents.

Conclusions. This study shows that in order to enable medical residents to share their suggestions for improvement, it is beneficial to invest in *supportive supervision* and increase their sense of *control*. Boosting medical residents' support would be most effective in hospital settings, while in other health care organizations it would be more effective to focus on job control.

INTRODUCTION

In health care organizations it is important that employees at all levels speak up and express their ideas on maintaining or increasing quality of health care.[1,2] This is especially relevant for medical residents, as they work at the front line of patient care where they experience and see good and bad practices.[3–5] Their rotations allow them to visit many different departments where they can have a fresh look at work processes. Next to improving the quality of care, speaking up can lead to increased feelings of control over one's work, which can in turn lead to higher levels of well-being.6 Further, proactively sharing suggestions for change is an important component of post-graduate medical education programs, as it is integrated in medical roles such as 'medical leadership' and 'health advocacy'.[7–9] However, proactively speaking up about key points for improvement is not easy. It is considered 'extra-role behavior', which means that it goes beyond what is expected of employees and requires sufficient amounts of time and energy, something which is scarce for residents.[3,10,11] Moreover, employees who speak up can be viewed as tiring or strenuous, which is no favorable position for residents.[12] Thus, speaking up is not self-evident, especially not in the traditionally authoritarian health care context.[13–16] Therefore, this study will identify and test which factors are associated with speaking up by medical residents.

Speaking up by medical residents

Speaking up, exchanging ideas, information or concerns that could benefit the organization is in social sciences often referred to as 'voice behavior'.[1,12,17–20] Three types of voice can be distinguished: suggestion-focused, problem-focused and opinion-focused voice.[1,21] Most research on speaking up by medical residents stems from the quality and safety literature with an expected *preventive* effect, and covers 'problem-focused voice'. This refers to an expression of concern about work practices, incidents or behaviors that can be harmful for the organization, for instance, speaking up about (un)professional behavior, (hand) hygiene, ethical issues and risky or deficient actions of medical staff.[14,15,18,22] In this study we address a different type of speaking up, namely 'suggestion-focused voice', which refers to proactively communicating suggestions or ideas that could improve current work practices. For example, changes in existing inefficient work routines, pointing out redundancies in administrative tasks or effective organization of time, space and resources.[1]

Combining findings from other professional fields on speaking up with findings from research on problem-focused voice by medical residents, we argue that two basic considerations are important for medical residents to speak up and make suggestions for change: (1) is it safe to speak up? (high support), and (2) is it likely to be effective? (high control).[1,12,14–17,22,23] This is in line with well-known behavioral models such as the Job-Demand-Control-Support (JDCS) model that argue that in highly-demanding job contexts, high support and high perceived control over one's behavior will lead to activation-related outcomes such as motivation, learning and performance.[6,24–27]

Is it safe to speak up? The social environment exerts a strong influence on a person's intentions and actions.[28] A meta-analysis on proactivity confirmed that social support is a major antecedent of proactive behavior.[17,29] Receiving support from peers or supervisors signals that an individual and his/her actions are accepted and valued.[13,30] We expect this relationship to be especially important in the medical context because of the close working relationship between residents and their supervisors. Thus, we expect supervisor support and speaking up to be positively associated (hypothesis 1).

Is it effective to speak up? Job control is also an important job characteristic in literature on proactive behavior, and is associated with increased feelings of responsibility.[13,17] When employees feel control over situations – particularly if they feel they can influence work outcomes – this can increase personal initiative.[13] For residents, job control could refer to being able to influence current work routines. Therefore, we expect a positive association between job control and speaking up (hypothesis 2).

The mediating role of work engagement. Work engagement is a 'positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption'.[31–35] It is often studied as a form of well-being. Similar to speaking up, work engagement is contingent upon the presence of job resources such as control and support, but it also affects behavior and performance at work.[32] Work engagement could thus mediate the association between job control, support and speaking up. Therefore, we expect that the effects of support and control on speaking up are at least partly mediated through engagement (hypothesis 3).[31]

The influence of organizational context. Research on work behaviors of residents such as burnout, engagement and workaholism predominantly focusses on hospital residents. Little is known about residents who work in other health organizational settings such as the public health sector.[36–38] We hypothesize that there are cultural and contextual differences related to safety and support between working within and outside hospital settings. Consequently, we explore whether

the studied relationships are different for residents who work in hospital settings compared to residents outside hospital settings. Summarizing, this study aims to explore whether two main aspects of medical residents' work context, i.e., job control and supervisor support, are associated with speaking up by medical residents. Moreover, we examine whether these associations are mediated by residents' work engagement. **Figure 1** represents the hypothesized research model (M1). This paper will test the hypothesized model using structural equation modelling (SEM). In SEM, a researcher specifies a model based on existing theory and then tests this model by simultaneously analyzing the *entire* system of relations among the study variables. While doing so, the researcher analyzes the extent to which the model is consistent with the data (i.e. its goodness-of-fit, as expressed in fit-indices).[39]

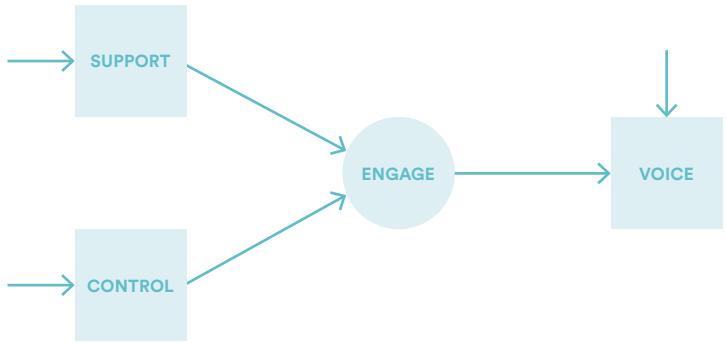

Figure 1 – *Full mediation model (M1) for the associations between Supervisor Support, Job Control, Work Engagement and Voice behavior.*

METHOD

Design and Participants

We tested the hypothesized model using a cross-sectional survey design. The survey was distributed among residents in the Netherlands from March through May 2018. Participants were approached by means of newsletters, direct email, links in learning environments and social media. Of the 580 responders, 81 cases were deleted due to (partly) missing data. Seventy-nine percent of the remaining participants were female and the mean age of the sample was 33 years (SD = 6.1). For the multigroup analysis, respondents were assigned to an in- or out-of-hospital group, based on their current position (**Appendix 1**). Two hundred ninety-nine respondents currently worked in hospital settings and 200 respondents worked in other healthcare organizations such as mental health centers, public health centers or occupational health agencies.

Since we did not know how many potential participants had been reached by our efforts, it was impossible to compute a response rate. However, our sample included 5% of the total population of residents in the Netherlands. To account for response bias, we compared our participant group to the general population of residents in the Netherlands on age, gender and organization type. Sixty percent of the respondents worked in hospital settings and 40% worked outside the hospital (e.g., in a community health center or mental health facility). This equals the distribution of residents across in- or out-of-hospital settings in the Netherlands (60% versus 40%).[40] Moreover, we checked whether the means and *SD*s of work engagement in our sample were comparable to those of another large sample study (*N*=2114, response rate 41%) on work engagement among Dutch medical residents, which showed strong similarity.[38] Thus, we believe that our sample is largely representative for the topic of work engagement in the total population of residents in the Netherlands.

This study falls outside the scope of the Dutch Law on Medical Research (WMO) and therefore ethical approval was not formally requested. However, we did protect our participants. The residents were informed that participation was both voluntary and anonymous and that it was possible to stop the survey at any given moment. All study material was anonymized and saved by one researcher on a protected server.

Measures

Speaking up. We operationalized speaking up as suggestion-focused voice, which was measured with 6 items taken from van Dyne and LePine.[20] The original items were translated into Dutch by a native translator using back-and-forth translation. Because our questionnaire was based on self-reports, the words "this employee" were replaced by 'I". Example item: "I speak up in this group with ideas for new projects or changes in procedures" (1 = "never", 7 = "always", applicable for all scales). See Appendix 2 for the English version of the complete survey.

Control. We measured control using the 10-item "Influence at work" scale of the Copenhagen Psychosocial Questionnaire.[41] Example item: "Do you have a large degree of influence concerning your work?"

Supervisor Support. We measured supervisor support using the 8-item Supportive Supervision scale.[42] Example item: "My supervisor encourages employees to speak up when they disagree with a decision".

Work Engagement. We measured work engagement as a three-factor model with the 9-item Utrecht Work Engagement Scale.[33,43] Three items tapped vigor (example: "At my work, I feel bursting with energy"), three items tapped dedication (example: "I am enthusiastic about my job") and three tapped absorption (example: "I feel happy when I am working intensely"). Work engagement has been extensively studied and previous confirmatory factor analyses showed that a three-factor model was superior to a one-factor model.[32]

Background Variables. Background variables included age, gender, specialty training program, year of training, work experience and organization.

Statistical analyses

Preliminary analyses. We checked the data for normality. Reliability estimates showed good internal consistency for all scales (**Table 1**), except for 'supportive supervision'. We deleted one item due to a low factor loading and a negative association with 'voice' (i.e. "My supervisor refuses to explain his or her actions"), resulting in a 7-item scale with good internal consistency. We performed a Harman single-factor test to account for common method variance.[44]

Main Analyses. We examined the research model using SEM in Mplus 8.1 (Muthén & Muthén, Los Angeles). Control, Support and Voice were treated as observed variables (using the means of corresponding scales) and work engagement was treated as a latent variable with dedication, vigor and absorption as its three indicators. Missing data were handled using Full Information Maximum Likelihood methods. Model fit was assessed using the x^2-statistic, the Tucker-Lewis Index (TLI) (> .90 indicates acceptable fit), the Root Mean Square Error of Approximation (<.08 = mediocre fit, <.05 = good fit) and the Akaike Information Criterion.[39] For the mediation analysis we applied a bootstrapping procedure. We calculated the total indirect effects of support and control on voice through work engagement to examine possible mediation effects.[45] For the multigroup analysis we compared the model fit of a constrained model (all parameters were constrained to be equal across both groups) to the fit of an unconstrained model (with parameters differing across groups). To assess the strength of our results compared to previous findings among other professional groups, we used the pooled data from a meta-analysis on voice and compared the model fit using their effect sizes compared to ours.[17]

RESULTS

Correlational analysis. Table 1 presents the means, correlations and reliabilities of the study variables. There were positive associations between support (r = .27, p <.01) and control (r = .37, p <.01) with voice, confirming hypotheses 1 and 2. The Harman single-factor test did not provide strong indications for common method variance, as the explained variance by a single factor was less than 50% (33.7%).

Structural equation analysis. The full mediation model (M_1) fitted the data only marginally, $x^2(df=8) = 74.318$; RMSEA = 0.129 (90% C.I. 0.103 - 0.156); TLI = 0.837; AIC = 7259.280. The partial mediation model (M_2) fitted the data considerably better, $x^2(df=6) = 27.211$; RMSEA = 0.084 (90% CI: 0.054 - 0.117); TLI = 0.946; AIC = 7216.173. The x^2-difference between the competing models was significant, Δx^2 (df=2) = 47.107, p <.01, which indicates that the partial mediation model is preferred to the full mediation model. **Appendix 3** shows the path coefficients of the partial mediation model. We found a significant association between control and voice (0.29, p <0.001), but not for support and voice (0.08, p >0.05). Our results showed that work engagement does not mediate the effect of job control and supervisor support on voice behavior within the full sample, rejecting hypothesis 3 (0.11, p > 0.05). To assess the relative importance of control and support for residents compared to other employees, we compared our path coefficients to the pooled effect sizes in previous research (0.37 versus 0.20 for control and 0.27 versus 0.15 for support).[17] We found that for control, our study reports significantly stronger associations compared to previous studies (Δx^2 = 4.761, Δdf=1, p =.03).

	M	SD	1	2	3	4	5	6	7	8
(1) Voice	4.61	1.02	.91							
(2) Support	4.33	1.11	0.27**	.90						
(3) Control	3.84	0.92	0.37**	0.48**	.89					
(4) Absorption	3.92	1.00	0.18**	0.32**	0.26**	-				
(5) Dedication	4.56	0.87	0.17**	0.40**	0.30**	0.70**	-			
(6) Vigor	4.05	0.92	0.30**	0.38**	0.37**	0.63**	0.70**	-		
Demographic variables										
(7) Age	33	6.1	0.10*	-0.09*	0.10*	-0.08	-0.10*	0.02	-	
(8) Gender, female	0.79	0.41	0.00	0.01	-0.01	-0.00	-0.02	0.01	-.02	-

** p=< .01 * p=<.05

Table 1 – *Means, standard deviations, correlations and reliabilities (Cronbach's alpha, on the diagonal) of the study variables, N = 499 residents, the Netherlands, 2018.*

Multi-group comparison. Multi-group SEM analysis showed that the model results differ between the resident groups (Δx^2 = 28.927 (*df*=8), *p* <.01) (**Figure 2**). The path coefficient between voice and support was significant for hospital residents (0.29, *p* <.01), but not for residents who work outside hospital settings (-0.08, *p* = 0.32). Moreover, the path coefficient between engagement and voice was significant for residents who work outside hospital settings (0.22, *p* <.05) but not for hospital residents (0.03, *p* = 0.70) . Mediation analysis showed that work engagement partly mediates the effect between control, support and voice for residents outside hospital settings (0.08, SE = 0.04 (95% CI: 0.02 – 0.19) and 0.04, SE = 0.02 (95% CI: 0.01 – 0.10), respectively.

This study showed that both job control and supervisor support are job resources that are associated with speaking up by medical residents. However, their associations differ across settings. Support was an important resource for speaking up for hospital residents, while work engagement had no significant mediating effect. For residents outside hospital settings control was an important resource to speak up. In this group work engagement positively related to speaking up and partially mediated the effect of control. Although we only tested for associations, previous studies on job resources and active work behaviors such as speaking up support the proposed direction of the effect as depicted in the research model.[6,26,32,46–49]

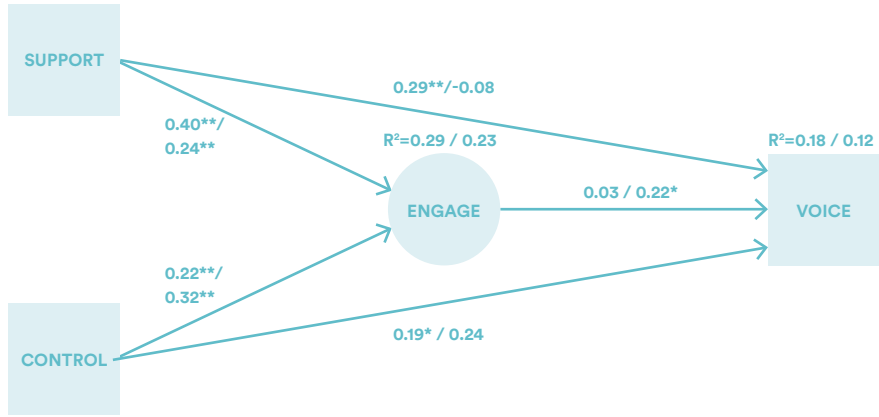

Figure 2 – *Structural paths from the multigroup analysis of the partial mediation model (M2). Coefficients represent standardized estimates for hospital residents (N=299) / residents working outside hospital settings (N=200). Total N = 499 residents, the Netherlands, 2018. ** p = < 0.01, * p = < 0.05, see table 1.*

We showed that the relationship between control and voice is stronger in our study than in other work settings. Thus, control is a relatively important resource for residents.[17] A possible explanation for the absent associations between work engagement and speaking up by medical residents in hospital settings is that contextual factors might inhibit residents from voicing their opinion, which could overwhelm their levels of engagement. One such contextual factor could be the frequent change of work environment due to the rotational character of in-hospital specialty training programs. Residents only spend a few months in a specific department before switching to the next. This could negatively influence their motivation to speak up, as previous research shows that speaking up is positively related to longer organizational tenure and experience.[1,50] Possibly, hospital residents feel that they lack the time or credibility to make effective suggestions for change, also relating to a lower sense of control.

Our results show that supervisor support is important for hospital residents, but does not influence speaking up by residents outside hospital settings. Hospital residents generally work closely with their supervisors in a 'master-apprentice'-like setting. In hospitals, physicians are socialised through a process which is referred to as 'the hidden curriculum': an informal learning process in which novices learn how to behave according to professional and occupational standards.[51,52] Hierarchy is an important element of this curriculum. This could explain why the support

of supervisors is especially important for hospital residents when trying to speak up. Outside hospital settings, medical residents usually spend more time in the same department or organization, thus building a stronger network and being less dependent on their supervisors. This could explain why support and speaking up are not significantly related for out-of-hospital residents, as the influence of their direct supervisor could be less important in a stronger network. In our sample, female residents were slightly overrepresented (79% in our sample versus 71% in the Dutch population) and our respondents were, on average, slightly younger (33 versus 34) than the total population of residents in the Netherlands. Note that the literature provides no conclusive evidence on the influence of gender on speaking up and we did not find any significant correlations between gender and our variables of interest.[1]

Limitations

One limitation of the current study is its low response rate, which could cause nonresponse bias. We calculated the response rate based on all residents in the Netherlands, because we used social media as part of our distribution strategy. However, it is unlikely that we reached all residents via these communication channels, meaning that our actual response rate is higher.

Further, the cross-sectional design means that our results must be interpreted as associations rather than causal relationships. Moreover, as is common in behavioral research, we could explain only a relatively small part of the variance of the study concepts. In line with the literature on proactive behavior at work, we focused on two main factors, i.e. job control and supervisor support. However, it is likely that other variables that were not included in our study also influenced speaking up by residents.

Implications

Our results provide starting points for medical education programs to enable residents to speak up and make suggestions for change, using specific organizational and occupational interventions that are targeted towards residents' sense of control and support. For example, it may be worthwhile to train supervisors in supporting their residents to step forward with suggestions for change, creating a positive learning climate. When speaking up becomes part of local culture, this can lower the threshold for residents to step forward with their suggestions. We do not believe – nor do we think it would be beneficial to organizations – that employees should be able to speak up about each and every issue they come across. We do believe that there is a minimal level in which residents should be able to speak up. Moreover, enhancing their residents' sense of control, for example, by involving them in staff meetings and "think tanks" or by simply asking for their opinion could stimulate speaking up. This is different from most current post-graduate medical education strategies, which are more focused on individual (competency) training.[53] When local training programs acknowledge that speaking up can be difficult for residents who are junior employees, this can be an important first step in creating a culture of speaking up and sharing novel ideas, suggestion and experiences.

Theoretically, this study further strengthens the evidence that control and support are positively associated with speaking up by (medical) employees. This association is different for hospital residents compared to residents who work outside hospital settings. Moreover, we demonstrated that work engagement is associated with job resources, which is in line with previous research.[1,17,20,54]

Summarizing, this study showed that perceived control and support are associated with speaking up and sharing suggestions for change by medical residents. This entails the idea that residents do not act in a vacuum, rather, they are embedded in their professional and organizational context. This embeddedness calls for attention to contextual factors such as job control and supervisor support that positively influences them to speak up and share their ideas for change.

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Appendix 1

Characteristics residents working in- (N=299) or outside (N=200) hospital settings.
Total N = 499 residents, the Netherlands, 2018

	Residents working in hospital settings (*N*)	Residents working outside hospital settings (*N*)
N total	299	200
Specialty type [¥]		
Cluster 1 *General Physicians, elderly physicians, physicians for mentally disabled*	2	4
Cluster 2 *Hospital specialties*	282	53
Cluster 3 *Public Health physicians*	-	142
Missing data on specialty training program	15	1
Current organisation		
General affiliated teaching hospital	124	
Academic Medical Center	174	
Other in hospital	1	
Mental health center		50
Public Health Center		70
Nursing home		4
Employee Service Agency		18
Occupational Health Agency		16
Center for Youth and Development		7
Rehabilitation center		3
Other *(e.g., politics, insurance company, commercial business)*		32

[¥] *In the Netherlands, residents are divided in three clusters: cluster 1 represents residency training programs for general physicians, elderly physicians and mentally disabled. Cluster 2 covers residency programs for hospital physicians such as surgeons, neurologists, paediatricians, radiologists et cetera. Cluster 3 represents residency training programs for public health physicians.*

Appendix 2. Survey guide

Includes:

1 **Utrecht work engagement scale** – 9 items
Source: Wilmar Schaufeli & Arnold Bakker – Utrechtse Bevlogenheid Schaal, Voorlopige handleiding (versie oktober 2003)

2 **Big Five Inventory** – 10 items*
Sources: Denissen, J.J.A., Geenen, R., & van Aken, M. A. G., Gosling, S. D., & Potter, J. (2008). Development and validation of a Dutch translation of the Big Five Inventory (BFI). Journal of Personality Assessment, 90, 152-157.

Rammstedt, B. & John, O. P. (2007). Measuring personality in one minute or less: A 10-item short version of the Big Five Inventory in English and German. Journal of Research in Personality, 41, 203-212.

3 **Voice** – 6 items
Source: Helping and Voice Extra-Role Behaviors: Evidence of Construct and Predictive Validity. Linn Van Dyne and Jeffrey A. LePine The Academy of Management JournalVol. 41, No. 1 (Feb., 1998), pp. 108-119)

4 **Job Control** – 10 items
Kristensen, T.F., & Borg, V. (2003). Copenhagen Psychosocial Questionnaire (COPSOQ). Copenhagen: AMI.

5 **Supportive supervision** – 8 items
Oldham, G.R., & Cummings, A (1996) employee creativity: personal and contextual factors at work. Academy of Mangement Journal, 39(3), 607-634.

*The Big Five personality questionnaire was added to the survey, but not used in the analyses.

Work engagement (UWES-9)

1. At my work, I feel bursting with energy.	1	2	3	4	5	6	7
2. At my job, I feel strong and vigorous.	1	2	3	4	5	6	7
3. I am enthusiastic about my job.	1	2	3	4	5	6	7
4. My job inspires me.	1	2	3	4	5	6	7
5. When I get up in the morning, I feel like going to work	1	2	3	4	5	6	7
6. I feel happy when I am working intensely.	1	2	3	4	5	6	7
7. I am proud of the work that I do.	1	2	3	4	5	6	7
8. I am immersed in my work.	1	2	3	4	5	6	7
9. I get carried away when I am working	1	2	3	4	5	6	7

1 = never, 7 = always

Big Five Inventory

I see myself as someone who...

1. ...is reserved *	1	2	3	4	5
2. ...is generally trusting.	1	2	3	4	5
3. ...tends to be lazy.*	1	2	3	4	5
4. ...Is relaxed, handles stress well.*	1	2	3	4	5
5. ...has few artistic interests.*	1	2	3	4	5
6. ...is outgoing, sociable.	1	2	3	4	5
7. ...tends to find fault with others *	1	2	3	4	5
8. ...does a thorough job.	1	2	3	4	5
9. ...gets nervous easily	1	2	3	4	5
10. ...has an active imagination	1	2	3	4	5

1 = disagree, 5 = totally agree

Voice behavior

1. I develop and make recommendations concerning issues that affect this work group.	1	2	3	4	5	6	7
2. I speak up and encourage others in this group to get involved in issues that affect the group	1	2	3	4	5	6	7
3. I communicate my opinions about work issues to others in this group even if my opinion is different and others in the group disagree with me	1	2	3	4	5	6	7
4. I keep well informed about issues where my opinion might be useful to this work group	1	2	3	4	5	6	7
5. I get involved in issues that affect the quality of work life here in this group.	1	2	3	4	5	6	7
6. I speak up in this group with ideas for new projects or changes in procedures.	1	2	3	4	5	6	7

1 = never, 7 = always

Job control (influence at work)

1. Do others decide on (parts of) your work?	1	2	3	4	5	6	7
2. Do you have a large degree of influence concerning your work?	1	2	3	4	5	6	7
3. Can you influence how quickly you work?	1	2	3	4	5	6	7
4. Do you have a say in choosing who you work with?	1	2	3	4	5	6	7
5. Can you influence the amount of work assigned to you?	1	2	3	4	5	6	7
6. Can you organize your own work?	1	2	3	4	5	6	7
7. Do you have any influence on how you do your work?	1	2	3	4	5	6	7
8. Do you have any influence on what you do at work?	1	2	3	4	5	6	7
9. Can you influence your work environment?	1	2	3	4	5	6	7
10. Do you have any influence on the quality of the work?	1	2	3	4	5	6	7

1 = never, 7 = always

Supportive supervision

1. In general, my supervisors help me solve work-related problems,	1	2	3	4	5	6	7
2. In general, my supervisors encourage me to develop new skills.	1	2	3	4	5	6	7
3. In general, my supervisors keep informed about how employees think and feel about things	1	2	3	4	5	6	7
4. In general, my supervisors encourage employees to participate in important decisions	1	2	3	4	5	6	7
5. In general, my supervisors praise good work.	1	2	3	4	5	6	7
6. In general, my supervisors encourage employees to speak up when they disagree with a decision	1	2	3	4	5	6	7
7. In general, my supervisors refuse to explain their actions*	1	2	3	4	5	6	7
8. In general, my supervisors reward me for good performance.	1	2	3	4	5	6	7

1 = never, 7 = always

Appendix 3.

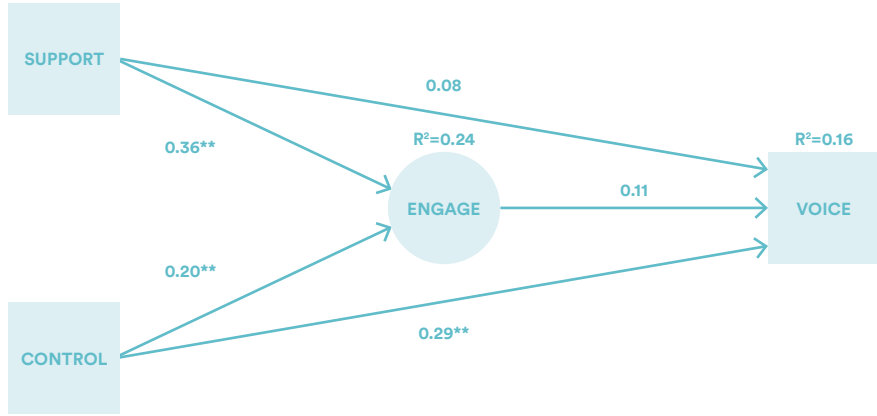

Figure 3 – Structural paths of partial mediation (M_2) research model. Coefficients represent standardized estimates. *N* = 499 residents, the Netherlands, 2018. ** p = < 0.01, * p = < 0.05

Chapter six

Building bridges: engaging medical residents in quality improvement and medical leadership

Judith J. Voogt, Elizabeth L.J. van Rensen, Marieke F. van der Schaaf, Mirko Noordegraaf, Margriet M.E. Schneider. International Journal for Quality in Health Care, Volume 28, Issue 6, December 2016, Pages 665–674, doi.org/10.1093/intqhc/mzw091

ABSTRACT

Objective: To develop an educational intervention that targets residents' beliefs and attitudes to QI and leadership in order to demonstrate proactive behaviour.

Design: Theory-driven, mixed methods study including document analysis, interviews, observations and open-ended questionnaires.

Setting: Six Dutch teaching hospitals.
Intervention: Using expertise from medicine, psychology, organizational- and educational sciences we developed a situated learning program named Ponder and IMProve (PIMP). The acronym PIMP reflects the original upbeat name in Dutch, Verwonder & Verbeter. It has a modern, positive meaning that relates to improving your current circumstances. In quarterly 1-hour sessions residents are challenged to identify daily workplace frustrations and translate them into small-scale quality improvement activities.

Main outcome measures: Organizational awareness, beliefs and attitudes to QI and organizational responsibilities, resident behaviour, barriers and facilitators for successful learning, and the program's potential impact on the organization.

Results: 19 PIMP meetings were held over a period of three years. Residents defined 119 PIMP goals, solved 37 projects and are currently working on another 39 projects. Interviews show that Ponder and IMProve sessions make residents more aware of the organizational aspects of their daily work. Moreover, residents feel empowered to take up the role of change agent. Facilitators for success include a positive cost-benefit trade-off, a valuable group process and a safe learning environment.

Conclusion: This article demonstrates the added value of multidisciplinary theory-driven research for the design, development and evaluation of educational programs. Residents can be encouraged to develop organizational awareness and reshape their daily frustrations in quality improvement work.

INTRODUCTION

The medical profession is facing major change as diseases, diagnostic instruments and treatments continuously increase in complexity. There is a growing societal demand for accountability, transparency, cost-efficacy and quality of care.[1,2] These changes bring about new responsibilities for physicians, responsibilities that focus on the organizational rather than medical side of health care provision.[3,4] To prepare physicians for this changing context, medical education should incorporate the organizational aspects of medical work, such as quality improvement (QI) and leadership, in postgraduate training.[5,6] Multiple studies highlight that residents are not fully prepared for their organizational responsibilities and medical educators are struggling to find suitable solutions to this problem.[7–13]

The literature on the sociology of professions offers an explanation for this struggle – professionals traditionally hold a negative attitude toward managerial practices. This is especially true for classic professionals, such as medical doctors.[1,14,15] Doctors are trained within a 'professional logic' which embodies values such as time, quality, learning and patient-centeredness. As healthcare becomes more complex, values from the organizational logic, such as control, risks, efficiency, costs and accountability, become more prominent and cause physicians to feeling disengaged. This sentiment causes friction when attempts are made to involve junior doctors in QI and leadership roles, which are both nested in the language and symbols of the organizational logic. This is a problem because organizational roles are actually very close to the core value of the profession: improving the quality of care for patients. This study aims to turn this disconnection around by reframing the organizational roles to the professional values and thereby connecting the professional and organizational worlds.

Medical scholars are used to evaluating the effectiveness of new methods but are generally not interested in consulting grand or middle-range theories to understand the mechanisms that explain *how* and *why* a method works.[16] A recent publication on QI work emphasized the value of a theory-driven approach for strengthening programs and evaluating their effectiveness.[17] Our study uses knowledge from medicine, psychology, public management and educational sciences as sources for in-depth knowledge on professional learning.

The aims of this paper are three-fold: (1) to demonstrate how organizational postgraduate education can be grounded in theory by deliberately using theory in the design, development and evaluation educational programs; (2) to describe the development, implementation and evaluation of the Ponder and IMProve (PIMP) program, a newly developed method for engaging residents in their organizational responsibilities; and (3) to present the results of a Dutch mixed methods study of the PIMP program.

DEVELOPING THE PONDER AND IMPROVE PROGRAM

The PIMP program originated at the University Medical Center Utrecht in the Department of Internal Medicine. The creators of the program had observed residents encountering many obstacles to providing good care, calling for improvements but not knowing how to address the problems themselves. Several studies confirmed this observation and showed the residents' need for additional knowledge, skills and authority to bring about change.[9,11] This provided the starting point for translating QI and leadership to the professional world of junior doctors. Using their day-to-day experiences and frustrations as the starting point for training opportunities, the PIMP program stays close to the residents' professional context.

Proactive behaviour is an essential component for both QI and leadership. Behavioural psychology research demonstrates that for any behaviour to take place, the combination of underlying beliefs (e.g., self-efficacy beliefs, outcome beliefs, control beliefs), facilitators (e.g., training, knowledge, skills) and external barriers (e.g., lack of organizational opportunities) should benefit the intended behaviour.[18] Most components of Quality and Safety curricula focus on either facilitators (training) or external barriers, but do not target the underlying attitudes and beliefs of residents.[19] An important requisite for proactive behaviour is the resident's perceived level of control: the belief that one has the ability to influence the environment.[20,21] The PIMP program was developed in order to enhance both control beliefs and proactive behaviour in a protected setting which also carefully considers the interests of other health care workers and patients. PIMP is designed to complement existing Quality and Safety curricula. The literature on training residents in QI has shown the benefit of taking an experiential approach.[16,22]

For the final design of the PIMP program, the authors combined their own teaching experience with knowledge gained from experiential learning, the integrated model of behaviour prediction, self-determination theory and professionalism literature (see **Table 1**).

Design considerations		PIMP course elements
Self-Determination Theory[26,27]	Autonomy	• Non-compulsory sessions • Bottom-up contribution by residents • Residents choose which PIMP goals they want to improve. The session facilitator does not cherry-pick topics nor allocates PIMP goals to residents
	Relatedness	• Residents formulate and carry out the improvement plans themselves • Non-hierarchical: all residents (junior and senior) are invited to pitch their ideas • All residents get the opportunity to speak their mind; their ideas are appreciated • Focus on QI as a group effort
Integrated model of behavior prediction[18]	Control beliefs	• Small, feasible QI activities within the resident's sphere of influence
	Self-efficacy beliefs	• Verbal encouragement of residents in PIMP meetings • Vicarious experience shared in listening to the stories of others
	Outcome beliefs	• Program mentality: the residents' contributions matter, not the outcome • Input is valued; medical educator creates leverage among peers and supervisors
Experiential learning[23]	Informal (workplace) learning	• PIMP goals are based on real workplace situations • QI work is carried out in the workplace • To reflect the residents' usual workload, no time off from clinical duties to work on their PIMP goals is provided regularly • Focus on collaboration with peers

Table 1 – *Course design considerations based on self-determination theory, experiential learning, professionalism and behavioural psychology literature.* [1,14,16,20,22–28]

Final design Ponder & Improve program

The formal part of the PIMP program asks for a relatively short time investment (four 1-hour meetings a year) and should be considered as a part of a larger QI curriculum. During PIMP meetings, residents are challenged to identify opportunities for improvement in their departments, called 'PIMP goals' (for examples see **Table 2**). First, all participating residents are divided into groups of 3–4 to brainstorm on their PIMP goals. During this part of the session, participants focus on sharing their experiences. The facilitator of the meeting should be careful that the brainstorming does not evolve into premature problem-solving and that the residents start discussing a multiplicity of issues and ideas. Second, the groups of residents taking part in the meeting exchange lists. Each group then selects a top three PIMP goals from the new list. Third, during the plenary inventory, the groups share their top three goals and give additional information on why these PIMP goals are interfering with their daily work and how they stop them from providing high quality patient care. Fourth, the residents collectively decide which PIMP goals should form the starting point for PIMP projects, by individually allocating points to the goals that are considered both urgent and beneficial for patient care. This can be done with a tally of votes on a whiteboard.

The facilitator's role is to assess whether or not a goal is feasible, within the resident's sphere of influence (e.g. redesigning the whole Emergency Room is not), and beneficial to the quality of care for patients. At the end of the PIMP meeting, residents sign up voluntarily to participate in a project group. These project groups consist of 2–4 residents responsible for the project, who formulate the first steps for taking action on how to solve the problem. In the course of the project, the team members can ask for help from colleagues (also from other disciplines) and senior staff. In the months following the PIMP meeting, residents formulate and implement a plan for change with their group. Because the program tries to reflect the daily work of residents as much as possible, the residents are not given additional time to work on their QI activities. Consequently, QI gets incorporated in the daily working routines of physicians instead of being perceived as an extra-curricular activity. However, if residents make a plan for change and ask their supervisor for free time, the supervisor could consider this question like any other request.

In the initial format, the facilitator of the meetings did not receive any personal training. For the start of the first meeting, the session facilitators received a manual that outlined the format of the Ponder & Improve session and included tips that resemble those shown in table 1. It is recommended to involve an additional employee such as a department secretary, policy adviser or the department's Quality and Safety expert to provide support for the PIMP program. This employee could invest one or two hours a week to help the residents to move forward whenever they get stuck with their change plan and could send them occasional e-mail reminders, requesting updates on the PIMP projects. In the following PIMP meetings, residents briefly report back on their progress along with their improvement activities and receive feedback if necessary.

Examples of PIMP goals	Improvement activities
Why do nurses frequently come to me for non-urgent questions about patients, after the clinical rounds? These interruptions make me lose focus on my own tasks.	The resident arranged a meeting with the nursing manager and clinical supervisor. Evidently these questions are important for the nurses to make progress. Together they agreed to introduce a regular moment for nurses to come forward with (non-urgent) questions. Junior nurses will first ask their supervisor for help before asking the doctors' advice.
Why is there no record or overview of the number of days an IV line is in situ? This can cause line infections.	Residents met up with IT personnel and nurses to discuss adding a new measurement box in the digital patient record to give a quick overview of how long the line is in situ and the current indication for the IV line. This way residents need to ask themselves regularly whether the IV line should be changed or removed.
Why is the attending physician not always at hand-overs?	Three residents and a department manager formed a project group to revise the agreement on hand-overs. They consulted peers and supervisors and used a National Society for Internal Medicine guideline to develop a comprehensive and efficient handover. The new handover guideline states that all attending physicians should be present at hand-overs. The project group routinely uses questionnaires to evaluate whether the handover meets expectations.

Table 2 – *Examples of PIMP goals and improvement activities*

EVALUATING THE PONDER AND IMPROVE PROGRAM: METHODS

The PIMP program was implemented in six residency programs across the Netherlands to evaluate its effect on resident learning, analyse underlying mechanisms for learning and identify barriers and facilitators for successful implementation. The Kirkpatrick model for training evaluation was used to assess the impact of the intervention on resident learning (**Table 3**).[29,30] Because the PIMP program's main target is the attitudes and beliefs of residents, the impact of the PIMP goals on the organization as a whole was only measured by proxy variables (**Table 3**). Participating departments enrolled voluntarily after becoming acquainted with the teaching method at a workshop or conference. **Appendix 1** describes the characteristics of the participating departments.

The mixed methods research design of the study included interviews, observations of PIMP meetings, document analysis of the PIMP goals raised and analysis of the communication concerning the PIMP program. An observation list for interpreting PIMP meetings (Appendix 2) was created, based on the theoretical considerations, (**Table 1**). Topic guides were developed to direct the structure of the interviews, based on the information obtained in the first stage of the research program (**Appendices 3 and 4**). Residents received an open-ended evaluation sheet after the PIMP meeting (**Appendix 5**). The first author conducted all interviews and observations. The research team maintained reflexivity by discussing and challenging established assumptions.

Participants

All residents of the participating departments were invited to the PIMP meetings by their program director or by the resident who initiated the PIMP program in their department. The average number of participants at sessions ranged from 5 to 16, depending on the size of the residency group and whether or not attendance was compulsory. The level of experience also varied among residents. Selected on the basis of purposeful sampling, residents, program directors and support staff were invited to 30 to 45-minute interviews. This resulted in 24 interviews. **Appendix 6** describes the respondent demographics. An open-ended evaluation sheet was distributed among participants (n=20) at three of six locations. The response rate was 80%.

Ethical Approval

This study falls outside the scope of the Dutch Law on Medical Research (WMO). All professionals were given the opportunity to refuse to participate and gave their verbal consent for voluntary participation. All professionals were informed that they were being observed and audiotaped for scientific purposes and gave verbal consent. All study material was anonymized and saved by just one researcher.

Data collection

Demographic data were collected during the interviews with respondents and information on the hospitals was obtained from their latest annual report. Interviews were recorded, anonymized, transcribed and supported by field notes. Interviews were conducted between October 2013 and December 2014. Information on the PIMP goals that arose at PIMP meetings was retrieved from the researcher's observational notes and from the session facilitator's reports of the meetings.

Data analysis

One research (JV) coded the transcripts using qualitative data analysis software (NVivo). Ambiguous statements were discussed by two researchers (JV and EvR). A process of open coding, analysis and interpretation identified the relevant themes. To assess the nature of the PIMP goals, all goals were classified using the medical version of the Eindhoven Classification Model (**Appendix 7**). This method

is generally used to classify root causes of medical errors and was now used as a guide for categorizing PIMP goals.[31] To assess the effect of the improvement activities on the quality of care, the PIMP goals were classified into one of six domains of health care quality as introduced by the Committee of Quality of Health Care in America (**Appendix 8**).[32] This study added a seventh category that applied to the job satisfaction of residents. All PIMP goals were independently classified by two researchers (JV and EvR), who discussed the differences in outcome and any disagreements until consensus was achieved.

RESULTS

During the total course of the PIMP program, the residents raised 119 PIMP goals. By the end of data collection, 37 PIMP projects were resolved successfully, 39 PIMP projects were ongoing and 43 PIMP goals did not result in any improvement activities. Most PIMP goals were based on organizational problems (64%) or technical problems (28%). Of the 119 goals, 45 topics were on improving the efficiency of healthcare; 44 PIMP goals pointed out safety concerns and 12 topics were classified as focusing on patient-centeredness. Six PIMP goals focused on making healthcare more timely and two addressed the effectiveness of healthcare. None of the PIMP goals focused on equitable care while 10 items focused on increasing the job satisfaction of the residents.

Impact of Ponder and IMProve on resident learning

During interviews, residents stressed that PIMP meetings made them more aware of organizational aspects to health care delivery. According to the residents, they achieved this by listening to updates on QI work undertaken by other residents and by taking on QI work themselves. Residents who took on a PIMP goal felt able to identify relevant stakeholders, barriers and facilitators to achieve successful implementation.

"They learn that there is more to the hospital than their consulting room. For example, one resident visited the Occupational Health Department during her improvement activities. She told me she had never realized that 30 people work in that department as well..." – Support staff

An important theme that arose from the interviews was that the PIMP program made residents feel heard and that their superiors were taking them seriously. This made them feel empowered to take on change, regardless of their level of experience.
"The simple fact that people higher up in the organization pay attention to my problems gives me the courage to keep fighting to make changes..." – Resident
Residents became aware of their own position in the hospital and its corresponding responsibilities: they felt that they should stop pointing fingers and start taking ownership of their problems. Some residents did not feel that the PIMP program contributed to their education. Some residents missed robust tools for planning and evaluating their QI work. **Table 3** summarizes the impact of the PIMP program on resident learning.

Barriers and facilitators for successful implementation of the Ponder and IMProve program

All respondents were questioned about contextual factors that, in their opinion, would either contribute to or hinder successful implementation of the PIMP program. Three main lines of argument emerged from the data.

Kirkpatrick level as interpreted by Yardley and Dornan[30]	Method of evaluation	PIMP program effect on resident learning
2a: Attitudes	Interviews with participants and program directors Open-ended questionnaires	Awareness of the organizational part of the hospital. Awareness of own position and responsibilities. Improvement to underlying beliefs (control, self-efficacy, outcome)
2b: Knowledge and/or skills	Evaluation of QI work and improvement plan Interviews with participants and program directors	Identify organizational thresholds, identify and assemble stakeholders for a meeting; make plans for improvements
3: Behaviour	Analysis of documentation PIMP meetings Evaluation of QI activities Interviews with participants and program directors	Voluntary participation in PIMP meetings. Input during PIMP meetings. Take on PIMP projects voluntarily, come up with and carry out improvement plans
4a: Organizational practice	QI Results from documentation and interviews	Resolve a PIMP goal by changing daily routines

Table 3 – *Impact of the Ponder and IMProve program on resident learning*

Cost-benefit trade-off

To make participation in PIMP meetings worthwhile, residents felt that there should be a proper cost-benefit trade-off in terms of input of their time versus utility of the program for their working routines. Residents wanted the session to be a useful tool to solve issues they encounter (patient-centredness etc.) and make their work more efficient. Nearly all respondents mentioned that they would like to measure the impact of the work done on the quality of care.

> *"Interviewer: In your opinion, when would the PIMP program be successful?*
> *Respondent: When there is a clear improvement in outcome measures."*
> – Program Director

One key factor for success appeared to be the residents' affinity for the subject. Although supervisors were instructed not to interfere by appointing PIMP goals, peer pressure sometimes caused a PIMP goal to be linked to a resident who initially did not want to take on this particular task. It threatened their autonomy and therefore their intrinsic motivation.[26] Residents especially felt as if they could not refuse an offer when their program director led the PIMP meeting.

Valuable group process

Respondents viewed PIMP sessions as easy, accessible meetings that were useful for every resident. They emphasized the importance of an enthusiastic group process. PIMP meetings were a platform for residents to talk with colleagues about everyday problems. They enjoyed sharing experiences and helping their colleagues.

> *"...I would go to a session just to help my colleagues and see what kind of PIMP goals they had come across in the day. We probably experience the same problems, but if you never discussed these topics you might think it could only happen to you..."* – Resident

Safe learning environment

According to the residents, a safe learning environment was a crucial success factor for implementing the PIMP program. The ability to speak up and be appreciated rather than criticized was an important incentive for residents to come forward with their PIMP goals.

In contrast, letting the program director lead the session could be a barrier if their presence was not perceived as safe. In this event, the residents felt they could not address the 'real' issues that were bothering them. When the rest of the ward perceived the PIMP goals and QI work as 'telling tales' rather than constructive criticism, the residents did not feel empowered to engage in their QI activities.

DISCUSSION

The results of this mixed methods study show that residents became aware of their organizational responsibilities through discussing, formulating, prioritizing and executing small practice-based improvement activities in the PIMP program. Insight into organizational processes was created through a plenary discussion of (on-going) improvement projects. In addition, the residents gained an awareness of their own influence and responsibilities in organizing their daily practices, even when they did not adopt an improvement project of their own. This is line with the literature on behaviour prediction, which shows that vicarious experience and control beliefs are important for (proactive) behaviour.

Moreover, this study showed that the residents wanted to learn more about practical QI tools at the PIMP meetings. This need could be explained by the diverse background of the residents. Up until a few years ago, not every Dutch curriculum included Quality and Safety education, which means that this generation's residents were trained during a transition phase. Consequently, the level of QI expertise varies between learners. This could be a reason to introduce basic quality improvement principles such as the Plan-Do-Study-Act cycle at PIMP meetings.

One of the limitations of this study is the open coding of the available material, which was conducted by only one researcher. To keep this constraint to a minimum, two researchers (JV and EvR) held daily consults. Moreover, selection bias could have occurred in the interviews. Some residents were put forward by their supervisor because of their initial interest in leadership. An additional question was added to the interview guide to identify the degree of organizational experience that the residents had.

The informal, professional-focused approach of the PIMP program could also have its disadvantages. The balance between the sometimes self-centred focus of residents and attention to health care processes that benefit the patient should be carefully weighed at PIMP meetings. Emphasizing the ultimate goal of the PIMP program

(improving the quality of care for patients) is a strategy used to try to prevent this doctor-focused mind-set from taking place. Here lies an important role for the facilitator of the PIMP meeting. The facilitator plays an important part in aligning the professional and organizational worlds and thus should pay close attention to the framing of the discussions at PIMP meetings. The link between the PIMP goals and the six domains of quality in healthcare could be made more explicit at PIMP meetings. These domains have the potential to connect to residents, educators and managers and could thus contribute to creating a common language between these professional groups. To that end, involving a Quality and Safety expert in the PIMP meetings could be beneficial.

Finally, the ultimate goal of the PIMP program is to broaden the scope of residents and empower them to become agents of change whose intrinsically motivated contributions benefit the quality of health care. Transforming residents into proactive QI advocates cannot be done by PIMP alone. The program should be embedded in an educational culture that appreciates the residents' contributions and provides them with additional opportunities (e.g., time, knowledge, skills) to flourish.

CONCLUSION AND IMPLICATIONS

To conclude, this paper met the three goals stated in the introduction. First, by demonstrating that it is possible to engage residents in their organizational roles and increase their sense of empowerment by formulating and executing small-scale QI activities based on workplace experiences. Emphasizing the organizational aspects of providing high quality healthcare could be an important first step in preparing residents for their new organizational responsibilities. The PIMP program should be integrated in a curriculum that includes formal QI training. Second, this paper shows the advantages of using existing theories to create meaningful learning opportunities that consider the medical professional culture. Third, the PIMP program evaluation showed that training the facilitators of the PIMP meetings is important for the success of the program. Our data suggest that stimulating residents' organizational awareness makes residents more keen to apply QI on the job. By simultaneously enhancing residents' self-efficacy in QI, this program could positively influence the quality of health care for patients as well.

Abbreviations:

PIMP Ponder and IMProve;
QI Quality Improvement;
SDT Self-determination theory

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Appendix 1

Characteristics of departments participating in the evaluation of the PIMP program.

Specialty	Type of hospital	Approxi-mate number of employees	Mean number of residents in residency group	Mean number of residents attending session	Stage of education	Compulsory	Facilitator
Internal medicine	University Hospital	11,000	> 20	10	Advanced	No	Program director
Surgery	University Hospital	11,000	10-20	No information available	Mixed	No	Program director
Gastro-en-terology	University Hospital	10,000	<10	5	Advanced	No	Resident
Paediatrics	Affiliated general teaching hospital	2,500	<10	6	Early	Yes,	Program director
Neurology	University Hospital	12,000	10-20	16	Mixed	during educational meeting	House consultant
Psychiatry	University Hospital	11,000	>20	14	Mixed	No	Medical educator

Table 1 – Characteristics of departments participating in the evaluation of the PIMP program

Appendix 2

Observation sheet PIMP session

- Course of the session: structure, promptness, duration
- Facilitator: experience, guidance, enthusiasm, encouraging bottom-up participation of residents, interruptions
- Participation: number of residents, contribution of residents, enthusiasm, number PIMP aims
- Hierarchy: who is speaking up, culture (open/closed), interruptions, atmosphere, how does the group emphasize important topics, project assignment

Appendix 3

Topic guide interview resident

Introduction: research project and aim of the interview

1 **Competency based education**

- Is your specialty training program based on the CanMEDS roles?
- How are they trained? Do you train them in specific situations?
- Which CanMED role are you most interested in?
- Do you have any organizational experience (board member student faculty etc)?

Description of medical leadership if resident is not familiar with the subject.

2 **Job specific situations**

- In which work situations do you encounter medical leadership or medical leadership related topics?
- Could you identify any situations in which you think of yourself as a frontline leader?
- What kind of virtues should a frontline leader possess?
- Do you ever notice work processes which need improvement during your working routines?

3 **Evaluation of PIMP program**

- What did you learn, or what do you expect to learn, from the PIMP program? How does this add to your medical training?
- Could you name any barriers or facilitators for participating in a PIMP session?
- What kind of struggles did you encounter while effectuating improvement projects? Or what kind of struggles do you foresee in carrying out improvement projects?

4 **Characteristics of a good doctor** *[questions intended for sub-study]*

- What makes a good doctor?
- What does your education add to the competencies you think you need to possess to become a good doctor?
- Does your education contribute to becoming a frontline leader?

Does your education provide you confidence for your day to day work as a doctor

Appendix 4

Topic guide interview program directors

Introduction: general introduction to research project and aim of the interview

1 **Competency based education**

- Is your specialty training program based on the CanMEDS roles?
- Do you practice them with your residents in specific, workplace, situations?
- What are the popular CanMED roles among your residents?
- What do you consider important skills for frontline leaders?
- Do you recognize these skills among your residents?

Description of medical leadership if program director (or educator) is not familiar with the subject.

2 **Job specific situations**

- What work situations do you associate with frontline leadership? Why are these typical?
- Do you give feedback to your residents? If so, on which topics? How does this work? Explain. If not, why not? Explain.
- Do you ever notice work processes which need improvement in your daily work routines?

3 **Residency training program**

- What makes a good doctor? *[question intended for sub-study]*
- How and what does your educational program add to the competencies that residents need to become a good doctor?
- How and what does your educational program contribute to developing frontline leaders?
- Does your own medical training provide you confidence for your day to day work as a doctor?

4 **Evaluation of the PIMP program**

- How is the PIMP program organized in your department?
- What do your residents learn from the PIMP program? How do you notice this? Or what do you expect them to learn? How will this help them in becoming a good doctor?
- Could you name any barriers or facilitators for resident participation in a PIMP session?
- How many residents attend a PIMP session in your department? (mean)
- What kind of struggles did your residents encounter while effectuating improvement projects? Or what kind of struggles do you foresee in carrying out improvement projects by residents?
- How do you support residents in effectuating improvement projects? Or how do you intend to support residents in effectuating improvement projects?

Appendix 5

Open-ended evaluation form

- How many PIMP sessions did you attend up till now?
- What did you expect to learn from the PIMP sessions?
- Did you ever contribute a PIMP aim? If yes: how many? If no: why not?
- Were you assigned to an improvement project? If yes: which one? If no: why not?
- What did you think of the PIMP session in terms of structure, duration and leadership?
- Did you find the PIMP session was lacking something important? What would you want to change about the Wonder and Improve session?
- Grade the session on a scale of 1 to 10.

Appendix 6

Respondent demographics

Respondent Study Number	Sex	Age	Specialty	Job description	Year of training (total training)	Years of experience as House Consultant
1	Male	34	Neurology	Resident	5(6)	-
2	Male	37	Neurology	House consultant	-	2
3	Female	31	Gastroenterology	Resident	6(6)	-
4	Male	35	Gastroenterology	Resident	6(6)	-
5	Female	29	Internal Medicine	Resident	4(6)	-
6	Female	36	Internal Medicine	Resident	4(6)	-
7	Female	31	Internal Medicine	Resident	3(6)	-
8	Male	50	Gastroenterology	Program Director	-	14
9	Female	28	Internal Medicine	Resident	1(6)	-
10	Female	28	Internal Medicine	Resident	3(6)	-
11	Male	34	Internal Medicine	Resident	5(6)	-
12	Female	32	Internal Medicine	Resident	4(6)	-
13	Female	30	Internal Medicine	Resident	4(6)	-
14	Female	31	Internal Medicine	Resident	4(6)	-
15	Male	31	Neurology	Resident	6(6)	-
16	Male	27	Neurology	House Officer	-	-
17	Male	56	Neurology	Program Director	-	22
18	Female	25	Psychiatry	Resident	1(6)	-
19	Male	57	Psychiatry	Program Director	-	22
20	Female	34	Psychiatry	Resident	2(6)	-
21	Male	42	Surgery	Program Director	-	6
22	Female	33	Internal Medicine	Staff member	-	-
23	Male	32	Paediatrics	Resident	1(6)	-
24	Female	53	Internal Medicine	Program Director	-	23

Table 1 – Respondent demographics

Appendix 7

Eindhoven Classification Model: medical version[1]

Root cause	Description
Technical factor	*External*: technical failures beyond the control and responsibility of the investigating organization. *Design*: failures due to poor design *Construction*: correct design which was not followed accurately during construction phase *Materials*: rest category for those materials defects not classifiable under technical design or construction.
Organizational factor	*External*: any failures at an organizational level beyond the control and responsibility of the investigating organization. *Transfer of knowledge:* refers to failures resulting from inadequate measures taken to ensure that situational or domain specific knowledge or information is transferred to.
Human Behaviour	*External*: human failures originating beyond the control and responsibility of the investigating organization. *Knowledge*: the inability of an individual to apply their existing knowledge to manage novel situations *Qualifications*: to the incorrect fit between an individual's qualifications, training or education and a task. *Coordination*: lack of task coordination within the organization or team. *Verification*: Concerns failures in the correct and complete assessment of a situation including relevant conditions of the patient and materials to be used before starting the intervention . *Intervention:* Applies to failures that result from faulty task planning and execution . *Monitoring* Pertains to failures during monitoring of process or patient status during or post-intervention.
Patient related	Failures related to patient characteristics which are beyond the control of staff and influence treatment.
Other	Rest category for failures that can not be classified in any other category.

[1] *Van Vuuren W, Shea CE., van der Schaaf TW. The Development of an Incident Analysis Tool for the Medical Field. Eindhoven University of Technology, Faculty of Technology Management 1997.*

Appendix 8

Six aims for improving health care as established by the Committee of Quality of Health Care in America[1]

Category	Description
Safe	Avoiding injuries to patients from the care that is intended to help them.
Effective	Providing services based on scientific knowledge to all who could benefit, and refraining from providing services to those not likely to benefit.
Patient-centred	Providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions.
Timely	Reducing waits and sometimes harmful delays for both those who receive and those who give care.
Efficient	Avoiding waste, including waste of equipment, supplies, ideas, and energy.
Equitable	Providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.
Job satisfaction resident	Regarding working-hours, working environment, personal- or work-relations influencing the job satisfaction of residents

Table 1 – Six aims for improving health care as established by the Committee of Quality of Health Care in America, adjusted for this study.

[1] *Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington DC: : The National Academies Press 2001.*

Chapter seven

Summary of findings and general discussion

AS highlighted in the introduction of this thesis, (frontline) medical leadership has the potential to increase the quality of care for patients and at the same time have positive effects on residents. Medical residents are an important resource for quality improvement because of the multitude and richness of their frontline experiences. Tapping into these experiences is important for sustaining and improving health care quality. Next to promising, medical leadership development is also vulnerable. It asks for a proactive attitude, which is not automatically appreciated in the traditionally authoritarian health care context. In short, (frontline) medical leadership is both promising and delicate. This thesis aimed to answer the following research question:

> *"How can frontline medical leadership, speaking up specifically, of medical residents be fostered and organized in medical service delivery?"*

In this chapter we provide answers to the main- and sub-questions and address three recurrent themes that are touched upon throughout this thesis. Based on these findings we will discuss academic and societal implications and offer our suggestions for future research.

SUMMARY OF FINDINGS

In the first part of this thesis we took a discursive and institutional approach to medical leadership. We set out to understand what medical leadership means in the Dutch health care context and what implications this has for medical practice. Moreover, we aimed to identify contextual constraints and opportunities for medical leadership development.

> **Sub-question 1:** *What does (medical) leadership mean? What perspectives on medical leadership exist and what are the implications for practice?*

In **Chapter 2** we conducted a discourse analysis on medical leadership in the Netherlands and showed that medical leadership is hard to define. It is an ambiguous concept that is appealing to a wide audience. This is similar to the general leadership concept, which is susceptible to positive and optimistic images. Possibly even too optimistic and positive to be translated into practice.[1,2] By analyzing language within twelve publications on medical leadership we found that medical leadership

is portrayed as a means to several different ends: as a way to retrieve professional autonomy ('take (back) the lead'), as a position or status desired by young, talented physicians and as a proactive attitude of all physicians to ensure and enhance the quality of care for patients. The analyses showed that a substantial part of medical leadership discourse is physician-centered with an emphasis on doctors in leadership roles and elite leadership training.

Sub-question 2: *How is medical leadership fostered in the medical context? What are pitfalls and opportunities from an institutional perspective?*

In **Chapter 3** we applied institutional theory to medical leadership development to explore how institutional context influences medical leadership development. We explained that according to institutional theory, behavior of individuals is always influenced by the institutional context in which it takes place in three distinctive ways: through regulative, normative and cultural-cognitive influences. We found that institutional constraints make that proactivity in health care contexts (1) does not automatically work and can even be sanctioned, (2) does not automatically fit and could be disliked and (3) is not automatically desired and therefore not always appreciated.

In the second part of this thesis we focused on a specific leadership behavior by frontline physicians: speaking up with suggestions, novel ideas or opinions that could improve their work practices. We operationalized this as 'voice behavior', more specifically suggestion-focused voice behavior.

Sub-question 3: *What motivates residents to speak up about organizational barriers and opportunities that could improve the quality of their work?*

In **Chapter 4** we explored what either motivated or inhibited medical residents to speak up using an exploratory qualitative interview design. We interviewed twenty-seven residents using Critical Incident Technique and analyzed these interviews using QUAGOL guidelines. We found that residents have a tendency towards silence when they have suggestions for change. Speaking up was perceived as risky and some residents learned to keep quiet as they were afraid of the negative consequences speaking their mind could have. Many residents felt that 'things never change' and therefore did not consider it worthwhile to share their suggestions. In the interviews we collected rich data on contextual aspects that could positively or negatively affect safety and efficacy perceptions of residents. These aspects related to perceived safety (is it safe to speak up?) and perceived control (is it effective to speak up?) of speaking up. This is closely related to the trade-offs described in research on speaking up about safety concerns.[3–6]

In **Chapter 5** we tested hypothesized associations between supervisor support, job control and speaking up by medical residents using a cross-sectional survey design and used structural equation modelling for data analysis. Moreover, we explored whether residents' work engagement was associated with speaking up. Speaking up was operationalized as 'voice behavior'. As explained in chapter 4, supervisor support related to perceived safety (is it safe to speak up?) and control related to perceived control and influence over situations (is it effective to speak up?). We found that both control and support were associated with voice behavior of medical residents. Differences among these relationships existed between residents across settings. For residents in hospital settings, supervisor support was an important resource for voice behavior and there was no significant mediating effect of work engagement. For residents outside hospital settings control was an important resource to speak up. In this group work engagement positively related to speaking up and partially mediated the effect of control. Moreover, we showed that the relationship between control and voice is stronger in our study than in other work settings. This shows that control is a relatively important resource for residents.

Sub-question 4: *How can speaking up by medical residents be fostered in practice? What are educational inhibitors and facilitators?*

In **Chapter 6** we explored how speaking up can be fostered in practice and evaluated an educational initiative called "Ponder and Improve" which aimed to stimulate a positive attitude towards quality improvement and endorsed proactive behavior in residents. Our mixed methods evaluation included interviews, observations of Ponder and Improve meetings and document analysis. The study showed that residents became aware of their organizational responsibilities through discussing, formulating, prioritizing and executing small and practice-based improvement activities. Moreover, residents became more aware of their own control over (the organization of) their daily practices. The study confirmed that a safe learning climate and perceived feasibility of quality improvement projects is important for resident learning. This again confirmed the importance of perceived safety and effectiveness. Moreover, the study showed that supervisors play an important role in aligning professional and organizational worlds.

This thesis showed that frontline medical leadership is an ambiguous concept which is pre-dominantly physician- and resident-centered. There is an emphasis on leadership as an individual's competency which is promoted through knowledge building and skills training. There are several contextual and institutional factors at play that currently inhibit (frontline) medical leadership, speaking up in particular. We found that in order to demonstrate frontline leadership, it is important that residents feel safe, in control, supported and valued. In the next sections we will address these topics in more detail and provide a general conclusion to the main question of this thesis.

RECURRENT THEMES

There are three recurrent themes clearly visible in all of the chapters of this thesis: (1) medical leadership in competency based medical education; (2) the autonomy paradox in frontline medical leadership development; and (3) the importance of support for frontline medical leadership development.

Theme 1: Medical leadership in competency based medical education

In medical education, medical leadership development is often framed as skill and knowledge acquisition for individual physicians.[7] The most commonly used didactic formats are lectures and seminars and most programs are physician-only, with no participation of other professional groups.[7,8] We found that this could be partly explained by a stress upon 'competencies', which is currently an influential movement in graduate medical education. Competency based medical education (CBME) focusses on the development of competencies, skills and specialty-specific subskills of individual physicians, which can be formally benchmarked. Nowadays this benchmarking is often done with use of milestones and entrustable professional activities (EPAs) which are more focused on specific tasks and incorporate the different stages residents are in during their progress from novice to expert.[9] While EPAs seem more applicable for daily practice, they too focus on individual physicians. Competency frameworks have proven useful for the development of well-defined (technical) skills and helped graduate medical education develop and mature over the past decades. However, this thesis showed that using a physician focused approach to medical leadership could lead to several problems.

First, by framing medical leadership as a competency which should be acquired by an individual, medical leadership becomes something that is personal, rather than relational. As such it runs the risk to be treated as something that is developed in a vacuum, overlooking the institutional, occupational and professional context in which medical leadership is enacted. These contexts can all work against leadership development. When this is overlooked, this lowers the chance that individual physicians will proactively engage in leadership activities as it is not likely to be successful and can even be harmful. This thesis showed that medical leadership (development) is embedded in- and influenced by institutional context in several ways: through regulative, normative and cultural-cognitive influences.[10–12] We found that especially supervisors (as part of the cultural-cognitive environment) have a strong influence on the degree of proactive behavior of medical residents. Whether a supervisor is open to suggestions for change, creates a safe climate to speak up or invites residents to voice their ideas or concerns impacts residents' decision to speak up or remain silent. Other organizational aspects such as size, degree of job control and proximity to managerial colleagues also influence this decision. Whether an individual is able to behave proactively is thus not just a question of whether this individual is competent, but is the sum of several contextual, institutional and individual factors that are at play.

Second, framing medical leadership as a personal competency through CBME puts medical leadership in an individualistic leadership paradigm. In such an individualistic view, a singular person is the unit of analysis. This closely relates to the trait- and behavior approaches to leadership that were popular in the 1930's to 1950's. As described in this thesis, the trait approach to leadership emphasize the attributes of leaders such as personality, motives, values and skills.[2] What leaders actually do on their job is described in behavior approaches. Both the trait and behavior approach tried to provide answers to intra-individual questions on leadership, for example how leadership skills are related to leader behavior. Nowadays, leadership theorists generally focus on leadership as shared or distributed phenomenon and pay attention to the role of followers.[13–16] Distributed leadership theories describe leadership as encouraging others to share responsibility for leadership functions. It is not about simply creating more leadership but facilitating 'concertive action' and 'conjoint agency'. Emphasis is on empowering many members of the organization, including both formal and informal leaders.[14,17] Describing medical leadership in individual-oriented competency frameworks is not compatible with these developments. This thesis showed that there is an emphasis on physician-centered medical leadership development. This could potentially have negative effects on communication, collaboration and patient involvement in health care.[18]

Third, capturing medical leadership in static competency frameworks overlooks the complexity of the situation in which medical leadership is enacted. As pointed out in this thesis, physicians work in a complex environment, with loosely defined tasks and continuously changing work situations. In such an environment it is important for leadership to remain flexible. Uniform, static leadership skills might not be appropriate for future health care challenges.

In sum, this thesis shows that considering medical leadership as a competency that should be developed on the individual level is not desirable, as it is unlikely to be successful and could even be harmful for individual health care professionals. When medical leadership is framed as a collective effort and medical supervisors, hospital managers and occupational organizations actively endorse and support speaking up by their frontline employees this could increase the chances for success.

Theme 2: The autonomy paradox in frontline medical leadership development

This thesis shows that in order to speak up and behave proactively, it is important that residents experience a sense of control over their environment and feel they can influence their work circumstances. This closely relates to the concept of 'autonomy', which is an important requisite for intrinsic motivation as described in established behavioral models such as Self-Determination Theory.[19] Moreover, it goes beyond merely having the practical resources to change your environment (can it be done?), but also taps into the debate about work-life balance of residents as it relates to their energy resources (can I do it?). In theory, physicians are described as highly autonomous professionals (see for example: Freidson, 2001; Trappenburg & Noordegraaf, 2018; Wilensky, 1964).[20,21,23] Based on their expertise, they are trusted to make important decisions and determine what is best for their patients. This suggests that residents have discretionary space to make autonomous choices in their work and influence their work circumstances. Paradoxically, this thesis shows that residents experience low levels of autonomy and do not feel like they are able to make changes.

In the interviews of Chapter 4, speaking up was described as futile, as residents believed that things never change at the places where they work. They described the short length of their clinical rotations (the amount of time they work on each department) and their considerably high work load as important aspects that inhibited them from speaking up. When residents worked in small-scale organizations and knew most of their (managerial) colleagues this helped them to speak up. Moreover, being actively invited to share their suggestions for change by their supervisors or to join (staff) meetings this increased their sense of control. The

structural equation analysis in Chapter 5 confirmed the hypothesis that control is associated with speaking up by residents. The results of Chapter 6 show that it is important that residents can choose the subject of PIMP projects themselves. Moreover, we found that it worked well when residents volunteer for a project. Both findings relate to self-determination and autonomy.

In Chapter 3 we reasoned that regulative influences of institutions can decrease physicians' (perceived) freedom to act and come up with creative and innovative ways of working, hereby decreasing their sense of control. In short, regulative influences refer to laws, rules and regulations that are monitored and sanctioned by special actors such as disciplinary courts. We gave three examples of such influences in the health care context: (1) evidence-based guidelines and protocols that regulate clinical decision-making. These population-based protocols can be at odds with making tailored and patient-centered decisions; (2) increased administration time resulting from growing demands for external accountability (e.g. checklists, authorization forms, medical correspondence) that take up to forty percent of physicians' time, hereby limiting their time for 'peripheral' perceived tasks such as leadership; and (3) financial compensation regulations with fee-thresholds which could disincentivize physician groups to optimize their patient flows.

The importance of perceived control and effectiveness has several theoretical explanations. Literature from organizational psychology emphasizes the importance of control beliefs for proactive behaviors such as voice.[24–26] As explained in the introduction, these scholars hypothesize that proactive behavior is preceded by a deliberate decision process in which individuals assess the likely outcomes of proactive behavior. Based on action- theory and social-cognitive-theory, Frese and Fay argue that individuals are motivated to take initiative if they believe they will be in control of the situation (control appraisals) and of their own actions (self-efficacy).[24] Moreover, it is important that they believe that they can deal with the potential negative consequences of taking initiative (change-orientation). These explanations are closely related to behavioral prediction models such as the reasoned action approach and the integrated model of behavior prediction.[27–29] These behavioral prediction models view personal agency as a combination of perceived control (described as 'an individuals' perceived amount of control over their own performance'), determined by control beliefs (described as 'an individual's perception of the degree to which various environmental factors make it easy or difficult to perform a behavior') and self-efficacy (described as 'an individual's belief in his/her effectiveness in performing specific tasks as well as by their actual skills').[27]

For organizational change, there is a specific type of self-efficacy, namely role-breadth self-efficacy which refers to one's confidence to perform a range of proactive activities such as long-term problem solving and improving work procedures.[30,31] These theories all emphasize the importance of (perceived) control for proactive behavior and also relate to the concepts of 'agency' and 'professional capability', as described in Chapter 3.[32–34]

Our findings closely relate to the concept of 'autonomy' as described in important psychological models such as the Self-Determination Theory (SDT). SDT identifies three universal psychological needs that are important for motivation: autonomy (having choice), relatedness (being close to other people) and competence (believing you are good at what you are doing).[19,35] Autonomous motivation is a predictor of success in terms of job satisfaction, job commitment and academic persistence. Moreover, it increases performance in complex tasks.[36] Self-determination was also found important for quality improvement initiatives in other studies.[37] These explanations all strengthen our finding that perceived control is an important resource for voice behavior of residents.

Theme 3: Importance of support for frontline medical leadership development

In this thesis we show that is important to create several forms of support to successfully develop frontline medical leadership. The way in which speaking up is appreciated by their environment strongly influenced whether or not residents decided to share their suggestions for change. Throughout this thesis we showed that especially supervisors have a strong influence on the decision to speak up or remain silent of their residents. In Chapter 4 we showed that residents feared that speaking up would label them as a troublemaker which could have negative consequences for their job opportunities. This perception either came from lived experiences in which they were 'punished' for speaking up, or was based on their own beliefs on what would be appropriate behavior in the eyes of their supervisors.

Next to these negative influences, we also found positive examples of the influence of supervisors. Chapter 5 showed that supervisor support is an important resource for voice behavior by residents who work in hospital settings. In the qualitative studies of Chapter 4 and Chapter 6, we found that a positive and open attitude of supervisors towards suggestions for change empowered residents to speak up. Moreover, when supervisors actively asked for their input on organizational issues this reduced their fear of speaking up. Based on these findings we suggested that supervisors were important for translating the managerial world to the professional world of residents, hereby demonstrating how organizational issues relate to patient care.

The importance of support has several theoretical explanations. 'Normative beliefs' or 'subjective norms' are important components in theoretical models on behavior prediction and behavior change such as the before mentioned Reasoned Action approach.[27,28] Normative beliefs refer to an individual's perception of the beliefs of their significant others that he or she should or should not perform a specific behavior. Examples of significant others are parents, partners, teachers and friends. As such, the importance of 'support' as emphasized in this thesis does not only refer to the supervising capabilities of an individual physician, but a widely accepted belief of a physician group, department or health care organization that proactive behavior is welcome and favorable. For residents, normative beliefs could be extra important as they are trained in a highly hierarchical and socialized environment with strong cultural influences. This cultural influence in medicine is referred to as 'the hidden curriculum'.[38] In contrast to the visible 'formal' curriculum, the hidden curriculum entails informal hidden socialization and internalization processes in which novices learn how to behave according to professional and occupational standards. The hidden curriculum refers to how learners interpret what is required of them, which can directly oppose widely adopted values such as patient-centeredness, ethical practice and in this case, speaking up.[36,38,39] Literature on the hidden curriculum describes three types of responses when taught behavior differs from behavior that is expected: detachment, entitlement and non-reflective professionalism. We found that detachment ('doing your time') was a common response among medical residents.

In this thesis we found that for residents in hospital settings, supervisor support was associated with speaking up, but this was not the case for residents outside hospital settings (e.g., public health physicians). A possible explanation for this difference is that residents in hospital settings work more closely with their supervisors in a master-apprentice type relationship. Moreover, it is possible that hierarchy is more prominent in hospitals compared to other health care organizations. For these reasons, the opinions and actions of supervisors could have more impact on residents who work closely with their supervisors in hospital settings, compared to residents outside hospital settings. Outside hospital settings, medical residents usually spend more time in the same department or organization, hereby building a stronger network and depend less on their supervisors. This could explain the absent association between support and speaking up by these residents as the influence of their direct supervisor is could be less important in a stronger network. Concluding, this thesis shows that it is important to create support for residents to develop frontline medical leadership and empower them to speak up and share their experiences.

GENERAL DISCUSSION

Before we will discuss the academic and societal implications of this thesis, we will first discuss several strengths and limitations of this thesis that are important for the interpretation of the findings. Moreover, we will present suggestions for future research.

Strengths and limitations

The theoretical and methodological variety displayed throughout this thesis could add to its validity and rigor. The variety of theoretical perspectives allowed to critically reflect on medical leadership development in health care contexts. For example, by combining educational literature with professionalism literature, this thesis takes professional, occupational and organizational logics into account when evaluating educational initiatives on medical leadership. Based on critical leadership studies and institutional theory, medical leadership was not viewed as an objective unit of research that is developed in isolated classroom settings, but as a complex and intersubjective topic that is at continuous interplay with its environment. Based on the recommendations from Chapters 2 and 3 to be explicit about what is meant by 'medical leadership' and go beyond ambiguous and loose definitions, we decided to research speaking up as a manifestation of frontline medical leadership. By using concepts and theoretical models that are well-defined and extensively researched (e.g., Job-Demand-Control(-Support) model[40], Voice[41] and Proactive Behavior [24,26,31]) we aimed to increase the internal validity of our research. Moreover, we used several methodological approaches to create a deeper empirical understanding of medical leadership and speaking up in particular. Combining approaches (quantitative and qualitative, theoretical and practical) helped us to triangulate our findings. Choosing a explorative sequential mixed methods design to explore speaking up by medical residents further strengthened this triangulation as it allowed us to test and generalize the initial findings of the interview study.[42]

By focusing on frontline medical leadership, and even more specifically, speaking up and voice behavior, this thesis narrowed its scope to a basic component of medical leadership. Physicians in formal leadership roles such as medical managers and physician CEO's are not addressed in this thesis. A recent literature review on medical leadership supports this choice as it divides the medical leadership concept in two forms: formal medical leadership as physicians in leadership roles and informal medical leadership which is viewed an intrinsic component of physician's daily work.[43] Moreover, leadership theorists also make a distinction between formal and informal leadership in complex and professional contexts such as health care.[14] This thesis focusses on the latter and provides more insight in informal or frontline medical leadership

A first limitation of this thesis is the generalizability of the results. All studies were conducted in the Netherlands with its own specific specialty training programs, medical culture and health care system. Moreover, the qualitative approach of Chapter 4 implies that the results cannot be generalized to a larger population of medical residents in the Netherlands. By validating these qualitative results in a quantitative survey design, we aimed to increase the external validity of our results. Based on our findings we do not know whether we can transfer our results beyond our national context. However, by interpreting our data with theoretical models that are internationally oriented and comparing our findings with international studies on speaking up and medical leadership, we have reasons to expect that our findings are relevant to specialty training programs outside the Netherlands. Also, in Chapter 3 we apply institutional theory to medical leadership development in the Dutch health care system. This study is inherently connected to the Dutch context and as such the results cannot be transferred to other contexts. However, institutional theory does hold across contexts.[10] Applying the same institutional lenses to medical leadership development in other health care systems could generate relevant knowledge for scholars, educators and practitioners.

A second limitation could be the representativity of our study populations. It could be the case that relatively proactive residents were interested to join our interview study. However, during the interviews we noticed that both residents with a reserved personality and residents with a proactive personality decided to participate in our study based on various motivations.

A third limitation relates to the nature of the data. All empirical studies in this thesis produced cross-sectional data, which means that we can only make inferences about associations and not causal relationships. However, over the past years other scholars have produced sufficient longitudinal data on control, support and engagement to confirm the hypothesized direction of effects.[44,45] Moreover, both in the survey as well as the interview study we used self-report as a source for data-collection. This could lead to recall bias and social-desirable answers. We tried to minimize the risk of social-desirable answers by granting anonymity and confidentiality in both the interview study as well as the survey. Moreover, during the preparations for the interview study of Chapter 4 we explicitly mentioned that the supervisors of the participants would not be informed whether they decided to participate or not. Also, we used Critical Incident Technique during our interviews (Chapter 4) to stay close to the lived experiences of residents. By interpreting our results from several perspectives in the literature we aimed to increase the validity of our results.

Finally, this thesis views medical leadership as taking responsibility for the quality of care, but does not use health care quality as an outcome measure. In Chapter 6, we used small quality improvement projects as a proxy indicator for increasing the quality of care in one of seven quality domains, but we did not follow up on these projects to assess whether they actually improved health care over a substantial period of time.

Academic and societal implications

This thesis contributes to the *understanding of medical leadership* in several distinct ways. Through our discourse analysis we showed that language is not objective as it can affect current ideas and practices and creates new realities. We showed that different interpretations of medical leadership exist and that these interpretations give substance to the meaning of being a doctor. A recent discourse analysis on medical leadership confirmed the notion that medical leadership is used strategically and can reconfigure medical professionalism.[18] The results of this discourse analysis are in line with our results and showed that medical leadership advocates encourage physicians to take back charge and regain professional dominance. Additionally, it showed that medical leadership is used as a way to disrupt old professional values and to construct the modern physician. The performative character of medical leadership has several implications. It is important for medical leadership scholars to be aware of the consequences of the definition they use in their research. We showed that it is beneficial to operationalize medical leadership using existing concepts from (social science) literature as it improves conceptual clarity and benefits from previous research. This also addresses the issues on the low levels of theorization of the concept.

When we compare our findings to *literature on speaking up about quality and safety issues* (problem-focused voice) by medical residents, we find many parallels.[4–6,46,47] It was already known that medical residents find it difficult to speak up about unsafe conditions in care delivery such as mistakes (e.g. missed diagnoses), rule breaking and failure to follow standardized protocols. Perceived safety (e.g., fear of reprisal, coming across incompetent) and perceived effectiveness (e.g., the prediction that nothing will be done and that these issues are out of your hands) are commonly described barriers in these studies. This thesis shows that for medical residents, motivations to speak up or remain silent overlap for different types of voice.

For *professionalism literature* the findings of this thesis fits in the current discussions on the hybridization of professional work in which organizational action becomes an intricate part of professional action.[48–50] This thesis shows that despite the popularity of medical leadership in theory, in practice it is still hard to incorporate managerial action into the daily work of residents. It might even have adverse events when it is not supported by their environment. For future research it would be interesting to focus on how organizing professionalism is enacted, if and how this influences the professional identify of physicians, and the influence on the quality of professional work.

Based on *literature on proactive coping, professional capability and Job-Demands and Resources* we expected that speaking up could have a positive influence on the well-being of residents.[32,33,51–54] These different strands of literature all suggest that proactively taking charge could function as a resource as it enables employees to actively shape their environment anticipate future threatening situations and address the problem at the heart of the demands and conflicts.[33] In both qualitative studies (Chapter 4 and Chapter 6) we found suggestions that speaking up could have positive effects on residents' well-being. Residents felt heard, taken seriously and part of the team when they successfully shared their suggestions for change. Noticing that things sometimes do change and that as a resident you can have a positive effect on the organization of care boosted their spirits. Against these expectations, we only found a small partial mediation effect of well-being (operationalized as work-engagement) for residents outside hospital settings. For residents in hospital settings we found no mediation effect. The absence of these effects has a few possible explanations. First, we measured well-being using the concept of 'work engagement'. Physicians score relatively high on work-engagement, indicating that they are a highly engaged workforce, which might be related to their professional nature as described in the introduction of this thesis.[55] It could be that work engagement is not a differentiating factor for residents, as they all score relatively high, and therefore no associations with voice were found. For these reasons we recommend future studies to measure burn-out instead of work engagement. Moreover, it could be that speaking up is an important resource for health care quality, but might not be beneficial for individual employees as it could be perceived as 'whistleblowing' instead of constructive suggestions for change. This counteracts the positive effects of being in charge of your own environment. These are important findings for literature on proactive behaviors (e.g., proactive coping, professional capability) of professionals. For future studies we suggest to focus on the relationship between medical leadership and well-being. Exploring conditions that allow proactivity and increase well-being at the same time could increase the chances of successfully empowering residents to develop medical leadership.

Educational implications

This thesis has several implications for medical education. First, if the goal of medical leadership is to improve collaboration, share responsibility for the quality of care and involve patients then this should be evident in medical leadership education. For medical education this means that it is important to find meaningful ways to involve patients and other health care professionals in medical leadership development. This is a delicate matter, as physicians as 'pure' professionals are used to train among their peers. Evaluating the influence of patient involvement and interprofessional training on frontline medical leadership development could be an important subject for future research.

Second, it is important that medical educators are aware of the ambiguity of the medical leadership concept, as this gives them the power to assign meaning to medical leadership. Medical educators could carefully discuss what medical leadership means within their hospital training program and how this concept could enhance the quality of patient care.

Third, throughout this thesis we found that learning from experience could be a fruitful way to engage residents in frontline medical leadership. Experiencing hands-on the difference you can make as an individual left a strong impression on residents. Moreover, listening to the experiences of close colleagues (vicarious experience) also had a positive effect on residents' organizational awareness and sense of control (Chapter 6). Currently the most common educational formats for medical leadership development are lectures and seminars that focus on knowledge acquisition and instruction of skills such as chairing a meeting or negotiating with your medical educator. Based on this thesis we recommend medical educators to consider to teach these types of skills in authentic work situations.

This connects to the final implication of this thesis for medical education, the importance of creating support for medical leadership development and speaking up. We demonstrated that frontline medical leadership is not self-evident, it is perceived risky and sometimes even futile. This is already described for speaking up about patient safety issues, but we did not expect that these cognitions would be strong inhibitors for speaking up about organizational issues. We found that when residents have suggestions for change, they tend to remain silent instead of speaking up. Apparently, residents experience a high threshold to speak up, irrespective of the subject. Moreover, we found that supervisors have a powerful influence on the decision to speak up of their residents, both positively and negatively. Developing an open attitude towards suggestions of residents, engaging them in health care improvement and visibly supporting their ideas empowers residents to speak up and make changes. This requires reflexivity (being aware of your own (implicit) assumptions and actions), coaching abilities and an open, non-critical mindset. For medical education it is important that supervisors acquire these skills to support their residents in this journey. It could be beneficial to simultaneously train supervisors how to support their residents in developing these non-clinical skills. Moreover, support does not only cover the coaching abilities of individual educators, but reflects a deeper, cultural layer of values and norms that are present at and across departments. Discussing current attitudes and responses towards proactive behaviors and quality improvement could be an important first step in creating more leeway for frontline medical leadership. In this thesis we explored the ideas of medical residents on medical leadership and speaking up, but did not cover the perspectives of their supervisors. The beliefs of their supervisors were important for residents. Future research could explore the supervisor perspective on frontline medical leadership.

Occupational and organizational implications

For medical residents it is important to realize that during residency training you do not simply pass-by departments, but are an important linking-pin between the organization and provision of patient care. Residents see and hear things that their supervisors do not. Exchanging this information could both positively influence the quality of their work, but also the quality of their work experience. This might not feel as an easy task, as it takes energy and could feel like swimming against the current. For this reason, it could be beneficial to build support in your environment and make it a team effort. For instance, by confiding in a befriend (senior) colleague or by approaching a colleague who is interested in addressing organizational issues. After all, speaking up and herewith engaging in the improvement of health care quality is not optional for residents, but at the very core of what an excellent physician does.

For *medical managers* it could be worthwhile to actively engage medical residents in meetings on organizational issues. This shows them that you value their ideas and input, lowers their threshold to speak up and provides them with a sense of control. For this to succeed, it is important that these meetings are not censored to be 'resident-proof' and discuss real subjects that are important to the department Moreover, departments could increase frontline medical leadership by creating formal and informal feedback structures on organizational issues and making visible which employees can be approached with suggestions for improvement. For this to happen, it is important that medical faculty, medical educators and frontline

health care workers collaborate and discuss current (implicit) assumptions towards proactive behavior of residents and possible consequences. When the hidden and the formal curriculum (taught behavior and expected behavior) are miles apart, this causes a moral decline in residents and leads to detachment. Allocating and endorsing role models could be a be an effective strategy in this regard.

And finally, if *health care organizations* want to stimulate innovation among residents and physician groups, it could be important to be attentive to the institutional constraints that currently impede improvement action. Using the lenses from institutional theory as presented in this thesis to identify these constraints is an important first step in addressing them. This could provide starting points for discussions with external regulators, such as the inspectorate, health care insurers and government.

CONCLUSION

This thesis examined medical leadership from several perspectives using a theory-driven, mixed methods and multi-disciplinary approach. We showed that medical leadership is a loosely defined concept that is susceptible to many different interpretations. It is considered a panacea for various problems in health care and is currently implemented throughout the health care system, competency based medical education in particular. There are several institutional, educational, occupational and organizational forces at play which may constrain medical leadership development that are currently partly overlooked. Instead of viewing medical leadership as desirable behavior of individual physicians which can be developed through individual classroom training, medical leadership development should be treated as a collective effort.

Only when hospital boards, medical educators, health care insurers and inspectorates collectively create leeway for innovation, medical leadership has the potential to thrive. In this thesis we consider frontline medical leadership as a feature that is important for all physicians. Frontline medical leadership is proactively taking responsibility for the quality of care for patients, society and yourself, and is especially important for frontline employees such as medical residents. It is important that they are able to speak up and share their valuable frontline experiences.

However, this thesis demonstrated that speaking up and proactively engaging in the organization of health care is not self-evident for residents. When they have ideas for change, is it likely that they remain silent instead of speaking up and sharing their suggestions. They could feel that speaking up is risky and believe that it will not make a difference.

When the voices of frontline employees are stifled this is a missed opportunity for the quality of patient care. It is important to realize that a hesitance to speak up is not merely a flaw of individual health care workers who are not able to behave proactively, but an outcome of several social, regulatory and educational processes that cause employees to feel that speaking up is not always welcomed and fostered. In this thesis we identified several possibilities to empower medical residents for frontline medical leadership. For example, by building adequate support systems, developing a culture that is open to suggestions of all employees and creating organizational space to test new ideas, proactive behavior could be fostered. In order to benefit from the valuable frontline experiences of residents and to continuously maintain and improve health care quality it is important to proactively engage residents in proactive behavior while remaining aware of the pitfalls of medical leadership development as described in this thesis. Medical leadership development should be handled with care.

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Samenvatting in het Nederlands

DIT proefschrift richt zich op medisch leiderschap. Medisch leiderschap wordt in dit proefschrift gedefinieerd als een proactieve houding waarbij artsen hun kennis en vaardigheden inzetten ten behoeve van de kwaliteit van zorg voor de patiënt, de maatschappij én zichzelf. We onderzoeken in dit proefschrift een specifiek aspect van medisch leiderschap: je uitspreken wanneer je organisatorische belemmeringen en kansen ziet die van invloed zijn op de kwaliteit van zorg. Dit speelt zich met name af op de werkvloer en is bekend als klinisch medisch leiderschap. Arts-assistenten (artsen in opleiding tot medisch specialist, huisarts of sociaal geneeskundige) komen dagelijks in aanraking met kwesties die de kwaliteit van zorg kunnen verhogen of verlagen. Dit kunnen gevarieerde kwesties zijn, bijvoorbeeld afspraken die zorgen voor vertraging voor de patiënt, of ideeën waarmee je tijdswinst kunt boeken op de polikliniek of in de kliniek.

> **De hoofdvraag van dit proefschrift is:** *"Hoe kan klinisch medisch leiderschap, je uitspreken in het bijzonder, onder arts-assistenten worden bevorderd en georganiseerd in de gezondheidszorg?"*

Medisch leiderschap is een multidimensionaal begrip. Het is niet zoals de meeste dingen in medisch onderzoek te meten via traditionele onderzoeksmethoden zoals bloedonderzoek of hersenscans. Het is een sociaal construct. Het is momenteel een veel gebruikte term in de zorg, maar een eenduidige omschrijving ontbreekt. Het wordt ook wel een 'magisch concept' genoemd: het klinkt inspirerend en overtuigend voor zowel medici als beleidsmakers, maar is ook een vaag begrip met veel verschillende betekenissen. Om deze reden hebben wij vanuit verschillende disciplines gekeken naar medisch leiderschap: vanuit een sociologisch perspectief, een medisch perspectief en een onderwijskundig perspectief. Dit proefschrift komt voort uit het 'professional performance' focusgebied, een samenwerking tussen vijf verschillende faculteiten van de Universiteit Utrecht: geneeskunde, sociale wetenschappen, REBO (Economie, Bestuur- en Organisatiewetenschap), diergeneeskunde en geesteswetenschappen.

Bevindingen van dit proefschrift

In het eerste gedeelte van dit proefschrift hebben we op een conceptuele manier gekeken naar medisch leiderschap als *begrip*. We hebben een overzicht gegeven van de verschillende typen leiderschap in de afgelopen eeuw en de verschillende manieren waarop je leiderschap kunt onderzoeken.

In **hoofdstuk 2** hebben we een discoursanalyse verricht. Door te bekijken wat verschillende mensen of instanties met een begrip bedoelen en te analyseren hoe

dit invloed heeft op de praktijk kun je met een discoursanalyse de achterliggende betekenis van een begrip achterhalen. Vanuit een discoursoptiek is taal niet objectief, maar geeft het juist betekenis en richting. Het is daarom belangrijk om te achterhalen wat een begrip als medisch leiderschap betekent. Immers, de invulling die medisch leiderschap krijgt, bepaalt mede hoe de medische professie vorm krijgt. De discoursanalyse liet zien dat medisch leiderschap een ambigu begrip is met een aansprekende boodschap voor een breed publiek. Dit is vergelijkbaar met het algemene leiderschapsbegrip, waarover vele populairwetenschappelijke boeken zijn geschreven. We hebben zestien publicaties geanalyseerd en daar drie verschillende perspectieven uit gedestilleerd. Het eerste perspectief ziet medisch leiderschap als een manier om 'de touwtjes weer terug in handen te krijgen'. Het tweede perspectief beschouwt medisch leiderschap als een voorname positie of vorm van status die geambieerd wordt door jonge, getalenteerde arts-assistenten. Het derde perspectief legt meer nadruk op patiëntenzorg en ziet medisch leiderschap als een proactieve attitude van alle artsen om de kwaliteit van zorg voor patiënten te bevorderen.
Een substantieel deel van het medisch leiderschapsdiscours richt zich op dokters in plaats van op patiënten, met een nadruk op dokters in leiderschapsposities en leiderschapstraining voor dokters. Uit dit hoofdstuk bleek dat medisch leiderschap uiteenlopende betekenissen heeft met ieder een andere invloed op de alledaagse praktijk.

In **hoofdstuk 3** hebben we uitgezocht hoe institutionele factoren invloed hebben op de ontwikkeling van medisch leiderschap onder artsen. Institutionele theorie komt uit de sociale wetenschappen en wordt gebruikt om inzicht te krijgen in dieperliggende sociale structuren (schema's, regels, normen, routines) die invloed hebben op het gedrag van organisaties en individuen. Volgens institutionele theorie beïnvloedt de institutionele context het gedrag van individuen. Instituties zijn geen organisaties, maar sociale raamwerken die ons gedrag reguleren en beïnvloeden. Denk aan overheidsstructuren, sociale overeenkomsten (bijvoorbeeld het huwelijk), normen, regels, rituelen en routines. Dit gebeurt op drie verschillende manieren: door middel van regulatieve, normatieve en cultureel-cognitieve invloeden. Met regulatieve invloeden beïnvloeden instituties gedrag door middel van regelgeving, monitoring en bestraffing. Ze beïnvloeden hoe mensen denken dat ze zich moeten gedragen. Met normatieve invloeden kunnen instituties een effect hebben op de normen en waarden die individuen belangrijk achten. Ze beïnvloeden hoe mensen denken dat ze zich *horen* te gedragen, oftewel wat *gepast* gedrag is. Bij cultureel-cognitieve invloeden tenslotte staan gemeenschappelijke symbolen, woorden, tekens, gedragingen en frames centraal. Ze beïnvloeden gedrag veelal op een onbewust niveau en leiden tot gedrag dat mensen als *vanzelfsprekend* ervaren.

Denk hierbij aan zichtbare tekens zoals de stethoscoop, witte jas en operatiepak, maar ook aan de veelal onbegrijpelijke medische taal waarmee artsen hun eigen wereld creëren. Je hoort er immers alleen bij als je deze taal ook kunt spreken.
In hoofdstuk 3 stelden we vast dat deze drie soorten institutionele beïnvloeding de ontwikkeling van medisch leiderschap - proactief gedrag in het bijzonder - in de huidige medische praktijk kunnen tegenwerken. Regulatieve invloeden kunnen medisch leiderschap in de weg zitten of zelfs afstraffen. Denk hierbij aan protocollen, standaarden en checklists die minder ruimte laten om medische beslissingen aan te sluiten op de wens van de patiënt. Normatieve invloeden maken dat medisch leiderschap niet altijd gepast is. Zo is het in de medische wereld minder gepast om te praten over het verbeteren van werkprocessen dan over het verbeteren van het medisch inhoudelijk denken, diagnosticeren en behandelen. Jonge dokters worden niet vanzelfsprekend betrokken bij organisatorische vergaderingen en het management kan worden gezien als 'de verkeerde kant'. Cultureel-cognitieve invloeden maken dat gedrag dat past bij medisch leiderschap niet het gedrag is dat wordt verlangd en gewaardeerd door de omgeving. In de medische cultuur speelt hiërarchie een belangrijke rol en dokters verwachten dat het niet wordt gewaardeerd als ze zich uitspreken over zaken die beter zouden kunnen tegen hun meerdere. Ook de fysieke omgeving van artsen - denk aan de inrichting van overdrachtsruimtes en de fysieke afstand tussen de verschillende specialismen in ziekenhuizen - is vaak niet ingericht op een manier die een open dialoog stimuleert. In hoofdstuk 3 geven we aanknopingspunten hoe deze invloeden juist ruimte kunnen creëren om medisch leiderschap verder te ontwikkelen.

Het tweede deel van dit proefschrift richt zich op één specifiek onderdeel van medisch leiderschap op de werkvloer: je uitspreken wanneer je suggesties hebt die de organisatie van zorg op een positieve manier kunnen beïnvloeden, in het Engels ook wel 'speaking up' genoemd.

In **hoofdstuk 4** hebben we met een kwalitatieve onderzoeksopzet onderzocht wat arts-assistenten motiveert of juist ontmoedigt om zich uit te spreken. We hebben 27 arts-assistenten geïnterviewd met behulp van de zogenaamde 'critical incident technique'. De analyses hebben we uitgevoerd op basis van de Qualitative Analysis Guide of Leuven leidraad. In deze studie vonden we dat arts-assistenten de neiging hebben om hun mond te houden, wanneer zij suggesties voor verbetering hebben. Je uitspreken werd als riskant ervaren en sommige arts-assistenten hadden aangeleerd om hun mond te houden omdat ze bang waren voor de negatieve consequenties. Denk hierbij aan hun reputatie (je uitspreken vonden sommige arts-assistenten

gelijk staan aan klagen en zeuren) en hun kansen op de arbeidsmarkt. Veel arts-assistenten hadden het gevoel dat de dingen toch nooit zouden veranderen en vonden het daarom niet de moeite waard om hun suggesties te delen. In de interviews verzamelden we rijke data over contextuele invloeden die zowel positieve als negatieve invloed hebben op de overtuigingen van arts-assistenten. Dit relateerde aan hun gevoel van veiligheid (is het veilig om me uit te spreken?) en de mate waarin ze het gevoel hadden invloed te kunnen uitoefenen op hun omgeving (is het nuttig als ik me uitspreek?).

In **hoofdstuk 5** hebben we in een kwantitatieve onderzoeksopzet de associaties tussen 'supervisor support' (het gevoel hebben dat je omgeving je gedrag waardeert en steunt), 'control' (een gevoel van controle over je werkzaamheden ervaren) en je uitspreken getest. Met een vragenlijstonderzoek onder 499 arts-assistenten hebben we de data verzameld en de analyses zijn uitgevoerd met 'Structural Equation Modelling'. Daarnaast is onderzocht of bevlogenheid een mediërende invloed heeft op deze relaties. We gebruikten vragenlijsten over 'voice behavior' als maat voor je uitspreken. De resultaten laten zien dat zowel steun als controle geassocieerd zijn met je uitspreken. Er is verschil tussen arts-assistenten in verschillende instellingen. Voor arts-assistenten die buiten het ziekenhuis werken (bijvoorbeeld artsen maatschappij en gezondheid) is support niet geassocieerd met je uitspreken. Dit was juist wel het geval voor arts-assistenten die binnen het ziekenhuis werken. Voor arts-assistenten in ziekenhuizen is er geen mediërend effect gevonden voor bevlogenheid, terwijl dit wel het geval was voor arts-assistenten buiten ziekenhuis. Controle bleek met name belangrijk voor arts-assistenten buiten het ziekenhuis en in mindere mate voor arts-assistenten binnen het ziekenhuis. Daarnaast laten we zien dat de associatie tussen je uitspreken en controle in onze studie sterker was dan in voorgaande onderzoeken buiten de zorg. Al met al laat deze studie zien dat je arts-assistenten kunt helpen om hun suggesties te delen door hun gevoel van controle te vergroten, of hun ervaren gevoel van steun door hun omgeving te bevorderen. Het verschilt per werkomgeving welke van de twee meer geassocieerd is met je uitspreken.

In **hoofdstuk 6** hebben we onderzocht hoe je er in de praktijk voor kan zorgen dat arts-assistenten zich makkelijker uitspreken. In deze studie hebben we een onderwijsinitiatief gericht op kwaliteitsverbetering genaamd 'Verwonder en Verbeter' in zes Nederlandse ziekenhuizen geïntroduceerd en geëvalueerd. Het initiatief heeft de doelstelling om proactief gedrag onder arts-assistenten te bevorderen en om een positieve attitude te ontwikkelen onder arts-assistenten omtrent kwaliteit en veiligheid. De mixed-methods evaluatie bevatte onder andere

24 interviews, observaties van 19 Verwonder en Verbeter bijeenkomsten en een documentanalyse. Tijdens de evaluatie werden 119 ideeën geopperd, 37 van deze ideeën werden succesvol in de praktijk gebracht, 39 ideeën waren nog in uitvoering toen het onderzoek stopte. Uit de interviews bleek dat arts-assistenten zich bewust werden van hun organisatorische verantwoordelijkheden door kleine praktijkvoorbeelden te gebruiken als startpunt van een klein verbetertraject. Ze werden zich meer bewust van de invloed die ze zelf kunnen uitoefenen op hun eigen dagelijkse werkzaamheden. Deze studie bevestigde dat een veilig leerklimaat en de (gepercipieerde) haalbaarheid van een veranderproject belangrijk zijn voor het leereffect. Dit bevestigde nogmaals het belang van het ervaren gevoel van veiligheid (en daarmee gerelateerd supervisor support) en effectiviteit (controle). Daarnaast benadrukte de studie de rol van de supervisor in het op één lijn krijgen van belevingswereld van de professional en die van de organisatie.

Terugkerende thema's

In dit proefschrift vormen drie terugkerende thema's een rode draad.

Thema 1: *medisch leiderschap in competentiegericht opleiden*

Medisch leiderschap wordt momenteel onderwezen in competentiegerichte opleidingsprogramma's, waarin de arts-assistent en zijn individuele opleidingsniveau centraal staat. Competentiegericht opleiden is bewezen effectief voor (technische) vaardigheden, maar kan er in het kader van medisch leiderschap voor zorgen dat de complexiteit van de context van medisch leiderschap over het hoofd wordt gezien. Leiderschap wordt beschouwd vanuit een individueel paradigma waarin de persoon centraal staat. Dit relateert aan leiderschapsparadigma's die met name in de jaren '30 tot '50 populair waren, maar inmiddels ingehaald zijn door andere leiderschapsopvattingen zoals gedeeld en gedistribueerd leiderschap. Hierbij ligt meer nadruk op de context waarin leiderschap plaatsvindt en het verdelen van taken en verantwoordelijkheden.

In dit proefschrift bepleiten wij dat het niet wenselijk is om medisch leiderschap te beschouwen als individuele competentie. Wanneer de relationele en context-afhankelijke aspecten van medisch leiderschap over het hoofd worden gezien, is minder waarschijnlijk dat medisch leiderschap leidt tot een verbetering van de kwaliteit van zorg en het zou mogelijk zelfs schadelijk kunnen zijn voor individuele zorgverleners. De kans van slagen is groter, wanneer medisch leiderschap wordt gezien als collectieve inspanning en wanneer proactiviteit actief ondersteund wordt door supervisoren, ziekenhuismanagers en beroepsverenigingen.

Thema 2: *de autonomieparadox bij het ontwikkelen van klinisch medisch leiderschap*

In dit proefschrift laten we zien dat wanneer arts-assistenten zich willen uitspreken over zaken op de werkvloer, het van belang is dat ze een gevoel van controle ervaren over hun werkomgeving en zo nodig veranderingen kunnen doorvoeren. Dit relateert aan het concept 'autonomie' als voorwaarde voor intrinsieke motivatie, zoals in de literatuur is teruggevonden. Theorieën over medisch professionals beschrijven veelal dat artsen professionals zijn met een hoog niveau van autonomie. Echter, paradoxaal gezien blijkt uit dit proefschrift dat arts-assistenten juist niet het gevoel hebben dat ze invloed kunnen uitoefenen op hun werkomgeving. Hier dragen wij door de hoofdstukken heen meerdere redenen voor aan, zoals institutionele invloeden (hoofdstuk 3) en contextuele factoren (hoofdstuk 4). Om medisch leiderschap te laten slagen, is daarom van belang het gevoel van controle over de eigen werkomgeving onder arts-assistenten te bevorderen. Door arts-assistenten bijvoorbeeld uit te nodigen om hun werkervaring in te brengen en mee te denken over de organisatie van zorg op de plekken waar het ertoe doet, kun je enerzijds hun gevoel van controle vergroten en anderzijds profiteren van hun waardevolle ervaringen.

Thema 3: *het belang van steun bij het ontwikkelen van klinisch medisch leiderschap*

De laatste rode draad in dit proefschrift is dat de omgeving een belangrijke invloed uitoefent op de mate van proactiviteit van arts-assistenten. Arts-assistenten blijken erg gevoelig voor de (gepercipieerde) mening van hun omgeving over hun acties. Sommige zijn bijvoorbeeld bang dat door zich uit te spreken ze bekend komen te staan als een lastpak en dat dit negatieve invloed heeft op hun baankansen. Met name de mening van hun supervisoren blijkt erg van belang. Deze kunnen daarom juist ook een positieve invloed uitoefenen. In hoofdstuk 4 en 6 bleek bijvoorbeeld dat een open en positieve houding van een opleider of supervisor ten opzichte van veranderinitiatieven een positieve invloed heeft op de proactiviteit van individuele arts-assistenten. Het verlaagt de barrière voor arts-assistenten om zich uit te spreken wanneer supervisoren proactief naar hun input vragen. Met name voor arts-assistenten binnen het ziekenhuis bleek de steun van supervisoren van belang. Concluderend laat dit proefschrift zien dat het belangrijk is om support te creëren in de omgeving van arts-assistenten, zodat ze zich durven uitspreken en hun ervaringen delen.

Conclusie

In dit proefschrift hebben wij medisch leiderschap vanuit verschillende perspectieven belicht door middel van een theorie gedreven, mixed-methods en multidisciplinaire aanpak. We hebben zowel naar medisch leiderschap gekeken vanuit een conceptuele blik (wat betekent het begrip medisch leiderschap?), als meer praktisch en onderwijskundig (hoe kun je arts-assistenten in medisch leiderschap bekwamen?). We hebben laten zien dat medisch leiderschap een begrip is dat nog in de kinderschoenen staat en waarbij een duidelijke definitie ontbreekt. Hierdoor is het ontvankelijk voor verschillende interpretaties en wordt het als wondermiddel gezien voor tal van problemen. Er vindt momenteel inbedding plaats van medisch leiderschap in verschillende domeinen van de gezondheidszorg, met name in het competentiegericht onderwijs van arts-assistenten. In dit proefschrift laten wij zien dat er verschillende institutionele, onderwijskundige en beroepsgroep gerelateerde invloeden zijn die momenteel over het hoofd worden gezien die een remmende invloed op medisch leiderschap kunnen uitoefenen.

In dit onderzoek zien wij medisch leiderschap als iets wat van belang is voor alle artsen. Met klinisch medisch leiderschap nemen artsen proactief verantwoordelijkheid voor de kwaliteit van zorg voor patiënten en de gezondheidszorg in zijn geheel. Voor met name arts-assistenten is van belang dat zij als oren en ogen op de werkvloer hun waardevolle ervaringen kunnen delen. Echter laat dit proefschrift zien dat je uitspreken en je proactief mengen in de organisatie van zorg voor arts-assistenten niet vanzelfsprekend is. Wanneer arts-assistenten ideeën hebben voor verandering is het waarschijnlijk dat zij hierover zwijgen, omdat ze het gevoel hebben dat het riskant is om je uit te spreken en dat het toch geen verschil gaat maken.

Wanneer de stemmen van de werkvloer niet worden gehoord blijven kansen voor verbetering van de kwaliteit van zorg liggen. Of iemand in staat is zich proactief te gedragen is niet alleen afhankelijk van (de competentie) van het individu, maar van een samenspel tussen verschillende contextuele, institutionele en individuele factoren. In dit proefschrift benoemen wij verschillende mogelijkheden om medisch leiderschap onder arts-assistenten te bevorderen. Bijvoorbeeld door adequate steunsystemen op te bouwen en te investeren in een cultuur waarin iedereen open staat voor de suggesties van werknemers of hier proactief naar op zoek gaat. Ook het creëren van ruimte in de organisatie om nieuwe ideeën uit te testen kan proactief gedrag in de hand te werken.

Alles overziend, om te profiteren van de waardevolle klinische ervaringen van arts-assistenten en zo de kwaliteit van zorg continu te waarborgen en te verbeteren is het belangrijk om *proactief* het proactieve gedrag van arts-assistenten te bevorderen. Dit proefschrift heeft belangrijke valkuilen in kaart gebracht om daarbij te vermijden. De ontwikkeling van medisch leiderschap moet worden behandeld met zorg!

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Liefste Tom:

Tussen liefde aan de linker kant
en rechts de eeuwigheid.
En in ieder land een vaderland,
een overkant en jij.
De Trein het Vuur de Dageraad.

Spinvis zong het al eens en wij voelden het. Het is niet in woorden uit te drukken wat jij voor mij betekent. Gelukkig weet ik dat jij dit weet en dat we dat weer allebei weten. Bedankt voor je rust, cynische grappen, woordspelingen (zie titel), opvrolijkmomentjes, eeuwige ontbijtjes met kopjes koffie en croissantjes, zorgzaamheid en diepgaande liefde. Ik kijk enorm uit naar de rest van ons leven en laat de laatste punt van dit dankwoord dan ook het startschot zijn van het nieuwe begin waar we allebei zoveel zin in hebben.

Research output and valorization

Peer reviewed articles

Voogt, JJ, et al. “Building bridges: engaging medical residents in quality improvement and medical leadership.” International Journal for Quality in Health Care 28.6 (2016): 665-674.

Voogt, JJ et al. Medisch Leiderschap Ontrafeld. Ned Tijdschr Geneeskd. 2015;159:A9123.

Voogt JJ, Taris TW, van Rensen ELJ, Schneider MME, Noordegraaf M & van der Schaaf MF. Speaking up, support, control and work engagement of medical residents. A structural equation modelling analysis. Medical Education. 2019, Sept. 30. doi: 10.1111/medu.13951

Voogt JJ, Kars MC, van Rensen ELJ, Schneider MME, Noordegraaf M, and van der Schaaf MF. Why medical residents do (and don’t) speak up about organizational barriers and opportunities. Published online ahead of print. Academic Medicine. 2019, Oct 1. doi:10.1097/ACM.0000000000003014

Submitted manuscripts

Voogt, JJ and Noordegraaf, M. Institutional Constraints on (and Opportunities for) Developing Medical Leadership.

Book chapter

Voogt JJ, den Rooyen C, Schneider MME. Medisch Leiderschap in de praktijk. (2016) In: Artsen met verstand van zaken. Fuijkschot, Versteeg, Verweij, Hilders, Levi (Red). Artsen met verstand van zaken. Zoetermeer: De Tijdstroom Uitgeverij.

Reports and articles

Mentor and co-writer of the vision document of the Student Platform Medical Leadership ‘Medisch Leiderschap: begin bij de basis’ (2016), that calls for the implementation of leadership education in undergraduate medical education. Download: platformmedischleiderschap.nl/wp-content/uploads/2016/01/Visiedocumenten-Studenten-PML.pdf

Co-author of newspaper article in Dutch national newspaper which calls physicians to engage in health care policy development on a national level: Verhulst, A. en Voogt, J. (2017, 22 januari). Artsen moeten hun stem laten horen. Trouw. p 2.

Conference contributions

Oral presentations

Voogt (2016, September). *Ponder & IMProve: a situated learning approach to engage medical residents in quality improvement and leadership.* Oral presentation during Toronto International Summit on Leadership Education for Physicians, Niagara Falls, Canada.

Voogt et al (2016, August). *Identifying the Core Elements and Antecedents of Medical Leadership in Junior Doctors.* Oral presentation at the Association for Medical Education Europe (AMEE) conference. Barcelona, Spain.

Working paper presentations

Voogt (2018, November). *From passivity to proactivity? Institutional Constraints on Developing Medical Leadership.* Working paper presentation during Public and Political Leadership (PUPOL) panel of Netherlands Institute of Governance (NIG) Conference, the Hague, the Netherlands

Voogt et al (2017, November). *Identifying the leader in Medical Leadership: a systematic mapping review and analysis to improve conceptual clarity.* Working paper presentation during Public and Political Leadership (PUPOL) panel of Netherlands Institute of Governance (NIG) Conference, Maastricht, the Netherlands

Voogt et al (2016, August). *Unlocking Medical Leadership: development of proactive behavior in medical residents, a longitudinal mixed methods study.* Working paper during Welfare State Governance and Professionalism panel of European Group for Public Administration (EGPA) conference, Utrecht, the Netherlands.

Poster presentations

Voogt et al (2016, September). *Uncovering the rationale behind medical leadership frameworks.* Poster presentation at International Conference for Residency Education (ICRE), Niagara Falls, Canada.

Voogt et al (2015, November). *Verwonder & Verbeter. Een praktijkgerichte lesmethode om AIOS te betrekken in kwaliteitsverbetering en medisch leiderschap.* Poster presentation at Nederlandse Vereniging voor Medisch Onderwijs (NVMO) conference. Rotterdam, the Netherlands

Workshops

Voogt and van Rensen (2015, October). *Wonder and improve: A situated learning approach for creating clinical leadership and organizational awareness among residents.* Workshop at International Conference for Residency Education (ICRE), Vancouver, Canada.

Voogt & Schneider (2013, 2014, 2015, December). *Verwonder en Verbeter. Workshop at Modernisering Medische Vervolgopleiding conference.* Nieuwegein, the Netherlands

Grants

Seed money from Professional Performance Focus Area, Utrecht University. Spent on organization of **"Invitational Symposium Medical Leadership in Post-Graduate Medical Education"**, November 22 and 23, 2016. Two-day international symposium on leadership education for physicians, including academic discussions, debate on leadership education with residents and medical educators and multi-disciplinary research meeting on medical leadership.

Seed money from Professional Performance Focus Area, Utrecht University. Spent on organization of **"Symposium Serious Games for Professionals"**. October 10, 2016. One-day multi-disciplinary symposium on the development of serious games for the education of professionals. Including invited speakers on serious game development, pitches of serious games and group work.

Valorization

Initiator and vice-chair of the foundation 'Dokters in Debat' (Debating Doctors), which aims to both provide physicians with the knowledge and skills translate their frontline experiences in strong and compelling arguments that could contribute to the organization of health care, and also bring physicians in contact with topics that are currently of interest for policy makers. The foundation offers a two-yearly multiple-week course, seminars and tailored workshops.

Developer and instructor of Teach the Teacher 'Verwonder en Verbeter', an accredited half a day training for medical educators on the Ponder and Improve ('Verwonder en Verbeter') program.

Co-developer of the 'Kwaliteit, Patientveiligheid en Medisch Leiderschap' (Quality, Patient Safety and Medical Leadership) **longitudinal learning module** for the undergraduate medical training program of Utrecht University.

Member of the **Sanokondu working group** which aims to develop open educational resources for medical leadership development world-wide. Development of the 'Lead-self' educational resources. sites.google.com/site/sanokondu/home/lead-self-resources/english---emotional-intelligence--resilience--professionalism

Member of the **CanBetter working group** on Medical Leadership. Organization of a 1-day symposium (July 2nd, 2015) on teaching medical leadership in postgraduate medical education for medical educators and residents. Development of inspiration cards for medical residents and educators on the implementation of medical leadership in postgraduate medical education.

Member of 'VeRS', a talent network of the 'Raad voor Volksgezondheid en Samenleving' (The Council for Health and Society). Co-developer of a winning pitch on 'work engagement of health care workers' for the new work agenda of the Council in 2020.

List of coauthors

Coauthors of manuscripts presented in this thesis and their affiliations.

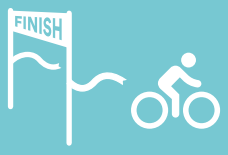
M.C. (Marijke) Kars	Julius Center for Health Sciences and Primary Care, University Medical Centre Utrecht
Mirko Noordegraaf	Utrecht School of Governance, Utrecht University
E.L.J. (Elizabeth) van Rensen	Staff department Board of Directors, University Medical Centre Utrecht
M.F. (Marieke) van der Schaaf	Center for Research and Development of Education, University Medical Centre Utrecht
M.M.E. (Margriet) Schneider	Board of Directors, University Medical Centre Utrecht
A.W. (Toon) Taris	Department of Psychology, Utrecht University

This thesis is a product of the focus area Professional Performance. Professional Performance is a collaboration between five faculties of Utrecht University that was founded to connect researchers, teachers and practitioners who are concerned with the changes in professional services and professional work.The five connected faculties are medical sciences, social sciences, LEG (Law, Economics and Governance), veterinarian sciences and the humanities.

Curriculum vitae

JUDITH VOOGT (1989) studied Medicine (2007 – 2014) at Utrecht University. During her Master's program she took a minor in Public Administration and Organizational Sciences at the Utrecht School of Governance at Utrecht University. During her final year, she developed a special interest in medical ethics, governance, care quality and patient safety. After obtaining her medical degree in October 2014 she started her PhD project on medical leadership. The PhD project was an initiative of the focus area 'Professional Performance' of Utrecht University, a collaboration between five faculties: medical sciences, social sciences, LEG (law, economics and governance), veterinarian sciences and the humanities. During this PhD project Judith was part of several under- and postgraduate educational initiatives, with a focus on quality and safety and medical leadership. She developed a teacher training for one of her PhD projects and was co-developer of a new clinical geriatrics clerkship which led to her obtaining her University Teaching Qualification (BKO in Dutch). She also initiated and organised a two-day international symposium on medial leadership and organised a symposium on the use of serious games in the education of professionals. While working on her thesis Judith worked as a medical resident on the clinical geriatrics department at University Medical Center Utrecht for one year. She then returned to work full-time on her PhD project. She was co-founder of 'Dokters in Debat' (debating doctors), a foundation that connects physicians and policy makers in order to lift the quality of health care.

Currently, Judith is working as a medical resident at the internal medicine department of the Diakonessenhuis in Utrecht. She is still interested and involved in health care governance and is currently a member of 'VeRS', a talent network of the Council of Health and Society in the Netherlands. In her future endeavours, she hopes to combine her work as a physician with health care governance.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