

# Learning shared decision making in postgraduate medical education

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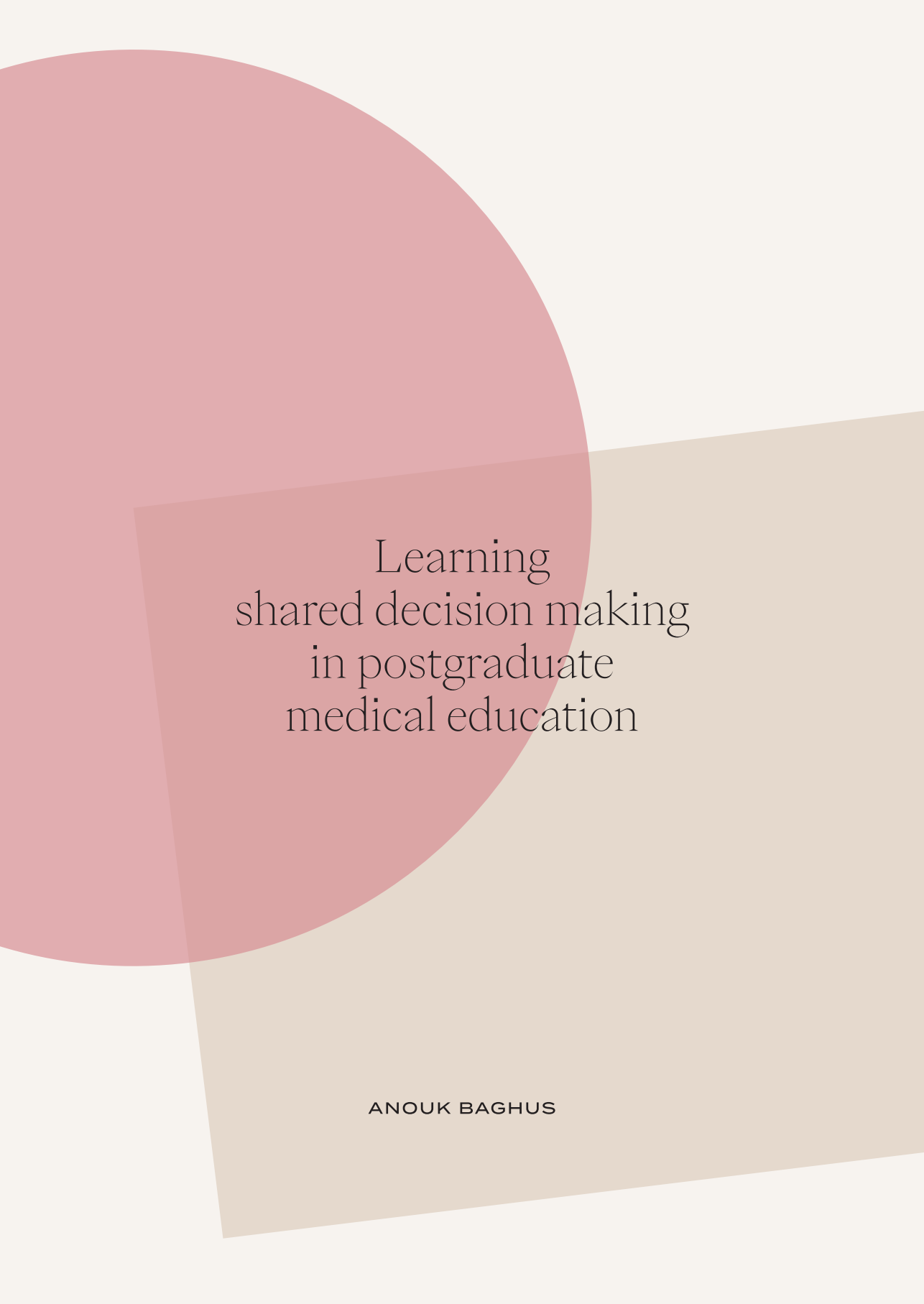
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Learning  
shared decision making  
in postgraduate  
medical education

ANOUK BAGHUS







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# **Learning shared decision making in postgraduate medical education**

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## The relevance of shared decision making in healthcare

In the past decades, delivering patient-centred care has become the prevailing norm.<sup>1</sup> Patient-centred care can be defined as *‘the holistic approach to delivering care that is respectful and individualised, allowing negotiation of care, and offering choice through a therapeutic relationship where persons are empowered to be involved in health decisions at whatever level is desired by that individual who is receiving the care’*.<sup>2, 3</sup> Shared decision making (SDM) is regarded fundamental to delivering patient-centred care.<sup>4, 5</sup> In this process, the healthcare professional and the patient work together to make a deliberate decision about which screening, diagnostic, treatment or management option suits the patient best.<sup>5</sup> These decisions are based on the healthcare professional’s expertise and the individual patient’s values and preferences, combined with the available evidence.<sup>5</sup> <sup>6</sup> SDM is considered relevant when there are multiple reasonable options, including comparable options in terms of benefits and harms, uncertainty about which option may be the best, or the possibility that patients value the options differently.<sup>7</sup> The patient may have difficulties to understand the information about the options and to express their values and preferences.<sup>8</sup> For this reason, the healthcare professional also supports the patient to understand the medical information, become aware of their own values and preferences in the process of decision-making, and make a decision that best suits them both.<sup>9</sup>

There are various models that describe the relationship between healthcare professionals and patients and the corresponding role of the patient in the decision-making process. SDM can be situated somewhere between the paternalistic and informative models.<sup>10</sup> <sup>11</sup> The traditional paternalism – following ‘doctor knows best’ – involves healthcare professionals deciding on the best option for patients’ health and well-being and then asking patients for informed consent. On the other hand, in the informative model – following ‘the autonomous patient’ – healthcare professionals provide all information to enable patients to decide for themselves. SDM shifts from a one-sided decision-making process to one where decisions are reached in partnership between the healthcare professional and the patient. This requires the healthcare professional to view the patient as an equal partner in the dialogue and be genuinely interested in their perspective.

SDM is a concept that is difficult to define, as what the process exactly entails may differ by culture and healthcare setting.<sup>12, 13</sup> Various models attempt to concretise the process.<sup>12-15</sup> The SDM process is usually summarised into four essential steps, of which three are effectively outlined in Elwyn’s well-known 3-talk model<sup>16</sup> and further distinguished into four in Stiggelbout’s model:<sup>17</sup>

1. The professional informs the patient that a decision is to be made and that the patient's opinion is important.
2. The professional explains the options and the pros and cons of each relevant option.
3. The professional and patient discuss the patient's preferences; the professional supports the patient in deliberation.
4. The professional and patient discuss patient's decisional role preference, make, or defer the decision, and discuss possible follow-up.

Most clinicians and patients consider it important to share decisions.<sup>18,19</sup> When decisions are made in collaboration, choices better align with patients' values and preferences.<sup>20</sup> Patients also have better knowledge about the options, feel more confident about the decisions, and experience less regret afterwards.<sup>20-22</sup> Moreover, SDM could improve therapy adherence by fostering commitment to the chosen option through active involvement of the patient in the decision-making process.<sup>23</sup> Additionally, SDM possibly reduces overtreatment and healthcare costs, based on the hypothesis that informed patients may be more likely to consider conservative options.<sup>22,24,25</sup>

In the Netherlands, there have been several national campaigns to promote SDM initiated by the Netherlands Patients Federation and various healthcare professional societies, and supported by the government, such as 'Ask 3 Questions' (3 goede vragen) and 'Start a Good Conversation' (Begin een goed gesprek).<sup>26-28</sup> Finally, SDM is increasingly recognized in healthcare policies and regulations as an essential ingredient of high-quality care.<sup>4, 5, 29</sup> For example, since 2020, the Dutch law on the medical treatment agreement act (WGBO) includes SDM as a requirement during consultations.<sup>30</sup> Overall, there is sufficient ground based on the positive effects of SDM on clinical outcomes, the possible reduction of healthcare use and costs, and its recognition by ethical and legal bodies, to actively involve patients in the decision-making process.

## **The complexity of learning shared decision making**

The importance of SDM is widely recognised and healthcare professionals may feel that they already share decisions.<sup>31</sup> However, evidence shows that actual patient involvement in decision-making in daily clinical practice is still limited. Studies examining healthcare professionals' consultation behaviour have demonstrated that their overall SDM behaviour tends to be low. In particular, low levels are observed in behaviours that involve tailoring care to patient preferences, which is an essential aspect of SDM.<sup>32-34</sup> To support the implementation of SDM in clinical practice, there is a growing emphasis on training. This has resulted in numerous educational interventions focused on SDM.<sup>35</sup>  
<sup>36</sup> Although training is considered important for increasing learners' knowledge and

skills and reinforcing intentions to engage in SDM in clinical practice, the effectiveness of these interventions on SDM performance remains limited.<sup>35,36</sup> These limited effects may reflect a transfer gap between acquiring SDM knowledge and skills in training and subsequently translating them into performance in clinical practice.

The limited effects of educational interventions might be explained by the complexity of learning SDM. Healthcare professionals encounter various challenges when learning and applying SDM. First, SDM is considered a competence that demands careful consideration of healthcare professionals' expertise, clinical guidelines and available evidence, and the values, needs and preferences of individual patients during consultations.<sup>5,6,16,37</sup> Therefore, healthcare professionals need to possess not only sufficient medical knowledge and experience, but also skills to interpret clinical guidelines and evidence and strong communication and collaboration skills to effectively engage patients in the decision-making process. Moreover, these encountered challenges include healthcare professionals' beliefs that they are already involving patients in decision-making and assumptions that patients do not want to be involved and prefer a paternalistic approach. They may also experience that certain patients cannot be involved due to characteristics of these patients, such as limited health literacy, limited illness insight or reduced cognitive abilities, or characteristics of the clinical situation, particularly in minor ailments or emergency situations.<sup>38-40</sup> Additionally, healthcare professionals may feel uncomfortable with losing decision-making power or overwhelmed by competing clinical demands and priorities during the consultation.<sup>38,39</sup> Furthermore, healthcare professionals' SDM behaviour is influenced by several factors. These include perceptions of the time required to implement SDM during consultations, the difficulty of the decision at hand, the nature of the pre-existing relationship between the healthcare professional and the patient, and the healthcare professional's confidence in their ability to engage in SDM.<sup>40</sup> And even when the barriers at the level of the healthcare professional are absent, challenges may arise when patients are not feeling well-equipped, ready or empowered to participate in the decision-making process.<sup>41</sup>

Based on the premises of adult learning theories, the complexity of learning SDM necessitates a continuous process of applied learning in clinical practice.<sup>42,43</sup> Research on educational interventions for doctor-patient communication in general has emphasised that training should focus on practical application and that the transfer of learning for complex competences is most effective when acquired within the authentic clinical context.<sup>44-47</sup> These studies also highlight the importance of repeated practice and evaluation in the workplace to gradually make the competence part of the learners' personal repertoire. Therefore, the clinical workplace is considered an ideal setting for learning SDM. Despite the importance of longitudinal workplace learning, most educational interventions for SDM are single, standalone training sessions with minimal

connection to what happens in this workplace.<sup>35, 48</sup> Also, these interventions mainly focus on training knowledge and skills in SDM as an isolated communication skill, resulting in minimal recognition of SDM as an integrated competence and little attention to learners' perspectives toward SDM. The latter is important because, according to the theory of planned behaviour, the views of learners toward the targeted behaviour (attitude), their beliefs about whether others think they should engage in the behaviour (subjective norm), and their perceived ability to perform the behaviour and anticipated obstacles (perceived behavioural control) are essential for behavioural change.<sup>49-51</sup> The perceived subjective norm is considered the strongest factor for performing SDM, suggesting that attitudes and behaviours of others involved in the learning process, such as patients, peers and educators, influence learners intention for behavioural change.<sup>51</sup> This highlights the importance of a learning environment that emphasises reflection on personal attitudes and the presence of positive role models for SDM.

## **Workplace learning in postgraduate medical education**

Postgraduate medical education is considered a suitable period to learn SDM, given its focus on longitudinal workplace learning.<sup>52</sup> During postgraduate medical education, residents work within the context of the profession, thereby learning and working are interconnected. In the workplace, residents are exposed to impactful, contextualised learning experiences, such as patient encounters, and are confronted with the content, norms and values of the future medical profession.<sup>44-46, 53</sup> They are equipped with competences for independent practice of the profession during workplace learning, while also undergoing significant shaping of their attitudes, values and behaviours as a medical professional.<sup>54</sup> Residents work under supervision of experienced clinicians, progressively acquiring greater autonomy and responsibility for managing increasingly complicated problems.<sup>52, 55</sup> Supervisors serve as important role models for residents.<sup>56</sup> Their attitudes and behaviours might even impact residents' learning more than formal training.<sup>57, 58</sup> Therefore, it is crucial for residents to see good examples of SDM in clinical practice. However, the performance of supervisors might not always match what is taught during formal training, which can hinder the transfer of competences.<sup>59</sup> Supervisors also should have a crucial role as coaches to support residents' learning. Ideal examples of coaching are facilitating meaningful learning opportunities in practice and observing, discussing and providing feedback on SDM performance.<sup>60</sup> <sup>61</sup> It seems important for supervisors to be aware of their role in residents' learning. Therefore, training for supervisors might be necessary to enhance their ability to provide didactic support for residents learning of SDM.

## Learning shared decision making in general practice specialty training

The specialty of general practice is traditionally characterised by patient-centred care.<sup>62, 63</sup> The patient's perspective is primarily emphasised during the first part of the consultation, by eliciting the patient's feelings, ideas and beliefs, concerns, expectations, and effects on their life (FICE).<sup>64-66</sup> This patient-centred focus could be further expanded throughout the entire consultation by integrating SDM, which is embraced as a professional core value in Dutch general practice.<sup>33, 67</sup> General practitioners provide generalist and continuous care.<sup>62, 63</sup> Hence, they can involve patients, with whom they often have built a longstanding relationship, in various decisions on a daily basis.<sup>7</sup> These decisions range from relatively simple, such as the preferred method for contraception or whether to refer a child with recurrent throat infections for a tonsillectomy or to choose for watchful waiting. Care in general practice also encompasses complex decisions, including initiating palliative care in the end-of-life stage or diagnosing impactful diseases, such as dementia or cancer, in vulnerable elderly patients. Therefore, it is relevant for residents in general practice to develop SDM proficiency during postgraduate medical education.<sup>68</sup>

General practice specialty training is competence-based, and national requirements set by the profession outline the competences and tasks for the profession, which residents must develop to become a general practitioner. These requirements are translated into educational curricula by local general practice training institutes.<sup>69</sup> The three-year specialty training includes placements in general practice in the first and third year, and external placements in emergency care, psychiatry and chronic care in the second year.<sup>70</sup> Workplace learning is alternated with a weekly formal training day with 10-15 peer-residents. These training days are facilitated by two teachers (an experienced general practitioner and a behavioural scientist or psychologist) and are coordinated by one of the seven local training institutes. Placements in general practice are characterised by a longitudinal one-on-one relationship between resident and their supervisor (an experienced general practitioner), fostering close involvement of the supervisor in the resident's learning process. Supervisors' coaching includes providing direct or indirect supervision on clinical encounters, stimulating reflection on behaviours, giving feedback and identifying learning questions.<sup>71</sup> Learning activities that take place are for example supervisors' observations of residents' performance, bidirectional observations in which supervisors and residents observe each other, and learning conversations to discuss medical topics and professional and personal development. General practice specialty training provides a suitable setting to study residents' learning of SDM, given the focus on longitudinal workplace learning, the relevance of SDM for the profession and the potential supportive clinical learning environment.

## Research gaps

There are significant research gaps, however, regarding longitudinal workplace learning of SDM. Overall, it is yet unknown how educational interventions targeting SDM can effectively stimulate the transfer of learning to actual clinical performance.

First, despite postgraduate medical education being competence-based, there is no consensus on the specific competences required for performing the four steps of SDM.<sup>72, 73</sup> Hence, it is unclear what residents need to learn and how to develop required competences during practising in the clinical workplace. In postgraduate medical education, entrustable professional activities (EPAs) can help to develop clinical competence in the workplace by detailing the competences into specific activities of the medical profession.<sup>74, 75</sup> Therefore, EPAs can be useful for describing what needs to be learned in clinical practice and can be used to formulate educational objectives. However, EPAs for SDM have not yet been described.

Second, there is a lack of insight into the needs for SDM training during postgraduate medical education. Little is known about the actual SDM performance of residents, as most studies have focused on medical specialists.<sup>32</sup> This gap makes it unclear which specific elements of SDM should be the focus of training in postgraduate medical education. Insight into residents' SDM performance is helpful for tailoring educational interventions appropriately. Additionally, it is not known what the needs, facilitators and barriers for learning SDM in postgraduate medical education are. Understanding these aspects from the perspectives of multiple stakeholders, including residents, supervisors and teachers, is important as it can guide the construction of an effective training that supports workplace learning of SDM. Furthermore, understanding residents' and supervisors' perceptions about their educational needs is essential, as designing educational activities that are aligned with learners' expectations and objectives may foster their intrinsic motivation for learning SDM.<sup>42, 76, 77</sup>

Finally, as most current SDM interventions are single, standalone training sessions,<sup>35, 48</sup> little is known about how to foster alignment between SDM knowledge and skills acquired in training and practising in clinical practice. Also, studies examining the effects of training on workplace learning and clinical performance from the perspectives of educators and learners are currently lacking. These insights are essential for promoting the transfer of learning to the clinical workplace. Including stakeholder perspectives in developing educational interventions can support the alignment of training and workplace learning and help to identify generalisable characteristics of interventions for various health professions education settings.



## Educational research approach

A suitable research approach that adopts the complexity of learning SDM is educational design research (EDR), also known as design-based research.<sup>78-80</sup> EDR aims to generate usable knowledge by simultaneously developing practical solutions and new theoretical insights. Meeting both aims is assumed to bridge the frequently experienced gap between educational research and educational practice.<sup>79, 81</sup> EDR distinguishes itself from other approaches by the following characteristics:<sup>78-80, 82</sup>

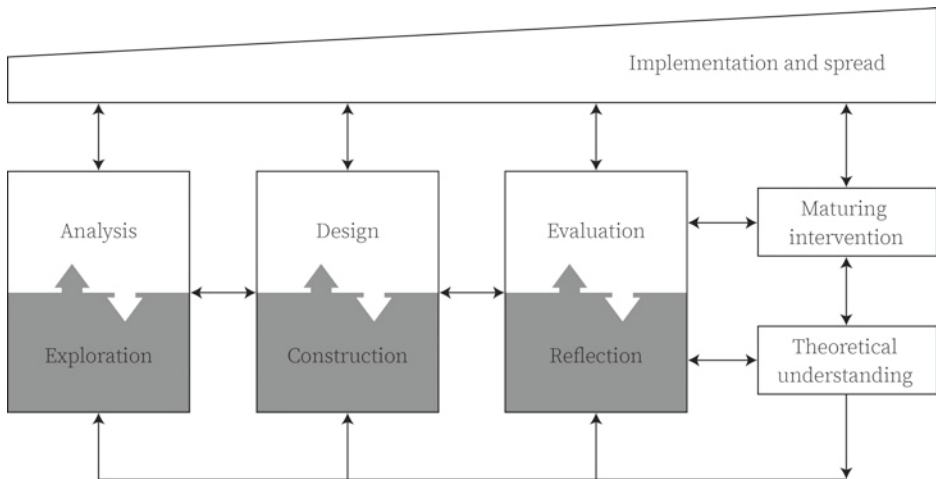
- *Theoretically oriented* – EDR uses theoretical principles to underpin the design of the educational intervention and contributes to advanced scientific understanding of why and how interventions work.
- *Interventionist* – the approach intends to develop an intervention to solve an actual educational problem in a particular context, to advance educational practice.
- *Collaborative* – EDR involves collaboration with various stakeholders, such as researchers, educational designers, educators and learners. As a result, different areas of expertise are represented, and stakeholders' ownership and commitment are fostered.
- *Responsively grounded* – the results are shaped by stakeholders' expertise, theory and testing within the authentic setting where learning usually takes place.
- *Iterative* – EDR takes place in continuous cycles of analysis, design, evaluation and redesign. Therefore, new insights are developed over time, allowing for the intervention to be redesigned and improved.
- *Mixed research methods* – EDR is a methodological framework, which uses multiple quantitative and qualitative research methods to gain deeper insight into the findings and better understand the complex interactions in the educational setting.

Given the focus, aims and characteristics of EDR, we consider this approach suitable for addressing the challenge of learning SDM in the clinical workplace. Therefore, EDR is used as the methodological framework for this dissertation. EDR follows an iterative process of three phases: 1) analysis and exploration; 2) design and construction; and 3) evaluation and reflection.<sup>80</sup> These phases are outlined in Figure 1, which shows the generic EDR model created by McKenney and Reeves.<sup>80, 83</sup> These phases are further illustrated in the following chapters through the studies conducted in this dissertation.

The aim of the *analysis and exploration* phase is to understand the educational challenge of learning SDM and the context of clinical workplace learning during postgraduate medical education. During *design and construction*, potential solutions are generated, explored and considered, and applied to create the educational intervention targeting SDM. Finally, during *evaluation and reflection*, design ideas and solutions are tested and

evaluated, and the findings are reflected upon, to refine the understanding of whether, how and why the educational intervention works. In the generic EDR model, the simultaneous development of theoretical understanding and an educational intervention targeting SDM is included as output of the EDR process. Additionally, implementation and spread throughout the process represents the interaction with practice that is present from the start and increases over time.

**Figure 1.** Generic model for educational design research by McKenney and Reeves<sup>80, 83</sup>



## Aim and outline of the dissertation

The overall aim of this dissertation is to develop a longitudinal SDM training programme, integrated into workplace learning of postgraduate medical education, aligned with the educational needs of stakeholders. This serves both a practical aim: to develop an evidence-informed SDM training programme that allows residents (and their supervisors) to improve their SDM performance in the clinical workplace; and a scientific aim: to understand how training can optimally support clinical workplace learning of SDM for residents and their supervisors. The Dutch general practice specialty training was chosen as a study setting.

In **Chapter 2**, a Delphi consensus study is presented that describes the development of EPAs and associated behavioural indicators for SDM to make explicit what needs to be learned during training. The following research question is addressed:

1. *What EPAs for SDM need to be learned during postgraduate medical education to perform adequate SDM in clinical practice?*

General practices are visited to record consultations between residents and their patients in **Chapters 3 & 4**. The observed consultations, as well as responses to questionnaires about SDM in these consultations, are used in the quantitative descriptive study described in **Chapter 3** to gain insight into residents' SDM performance from an observer, resident and patient perspective, answering the research question:

2. *What is the current SDM performance level of residents?*

A part of these collected consultations is used in the study outlined in **Chapter 4** to facilitate residents' reflection on their educational needs during video-stimulated interviews. To investigate how to optimise residents' engagement during workplace learning of SDM, the following research question is addressed:

3. *What are residents' educational needs for workplace learning of SDM?*

The subsequent two chapters focus on the design, implementation and evaluation of the longitudinal SDM training programme. Mixed research methods are applied, using work sessions, researcher meetings, observations and debriefings of training sessions, focus groups, questionnaires and interviews as input. **Chapter 5** describes the collaborative design of the training programme, its blueprint, and the evaluation of experiences of teachers, residents and supervisors with the training programme, to derive principles for educational design. Triangulation of all data sources is used to answer the research question:

4. *How to design an evidence-informed SDM training programme for postgraduate medical education?*

**Chapter 6** describes the exploration of how the training programme contributes to experienced workplace learning of SDM by residents, supervisors and teachers. Triangulation of the focus groups, questionnaires and interviews, complemented with data from the observations and debriefings of training sessions, is used to answer the final research question:

5. *How does a longitudinal SDM training programme contribute to experienced learning and application of SDM by residents and their supervisors in the workplace?*

Table 1 provides an overview of the studies in this dissertation. By combining this research with my general practice specialty training, I was challenged to develop my personal competence and performance in SDM. To illustrate this learning process, examples of my impactful learning experiences regarding SDM can be found before each of Chapters 2-6 in this dissertation.

**Table 1.** Overview of the content of the dissertation, including each study's aim, design, data sources, stakeholders and EDR phase

<b>Aim</b>	<b>Design</b>	<b>Data sources</b>	<b>Stakeholders</b>	<b>EDR phase</b>
<b>Chapter 2</b> To reach consensus on EPAs and associated behavioural indicators for SDM as a framework to support self-directed learning during postgraduate medical education	Modified Delphi consensus study	Online questionnaires	32 experts in SDM, doctor-patient communication, and medical education: clinicians active in patient care; patient representatives; trainers, coordinators, educational developers; and researchers	Analysis & exploration
<b>Chapter 3</b> To gain insight in residents' observed and perceived SDM performance in general practice	Quantitative descriptive study	Recorded consultations, questionnaires	20 residents from 4 different GP training institutes; and 98 patients	Analysis & exploration
<b>Chapter 4</b> To investigate how to optimise resident engagement during workplace learning of SDM by understanding their educational needs	Explorative qualitative study	Semi-structured video-stimulated interviews	17 residents from 4 different GP training institutes	Analysis & exploration
<b>Chapter 5</b> To 1) examine the process of educational design; 2) construct a blueprint for an SDM training programme; 3) explore stakeholders' experiences with the training programme; and 4) formulate principles for educational design	Educational action research	Work sessions; researcher meetings; observations and debriefings of training sessions; focus groups; questionnaires; and semi-structured interviews	8 teachers; 49 residents; and 50 supervisors, all from 2 different GP training institutes	Design & construction; evaluation & reflection
<b>Chapter 6</b> To explore how a longitudinal SDM training programme contributes to workplace learning of residents and their supervisors	Educational action research	Focus groups; questionnaires; semi-structured interviews; and observations and debriefings of training sessions	8 teachers; 31 residents; and 36 supervisors, all from 2 different training institutes	Evaluation & reflection

Abbreviations: EDR, educational design research; EPA, entrustable professional activity; SDM, shared decision making

The general discussion in **Chapter 7** outlines a reflection on the key messages of this dissertation and considers the methodological strengths and limitations as well as implications for practice and future research. The impact paragraph in **Chapter 8** reflects on the scientific and societal impact of the results of the research presented in this dissertation.

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## CHAPTER 2

# Entrustable professional activities for shared decision making

Anouk Baghus, Esther Giroldi, Jean Muris, Anne Stiggelbout, Marjolein van de Pol, Angeliqne Timmerman, Trudy van der Weijden. Identifying entrustable professional activities for shared decision making in postgraduate medical education: a national Delphi study. *Academic Medicine*. 2021;96(1):126-133

## **Abstract**

### **Purpose**

Although shared decision making (SDM) is considered the preferred approach in medical decision making, it is currently not routinely used in clinical practice. To bridge the transfer gap between SDM training and application, the authors aimed to reach consensus on entrustable professional activities (EPAs) for SDM and associated behavioural indicators as a framework to support self-directed learning during postgraduate medical education.

### **Method**

Using existing literature on SDM frameworks and competencies; input from an interview study with 17 Dutch experts in SDM, doctor-patient communication and medical education; and a national SDM expert meeting as a starting point, in 2017, the authors conducted a modified online Delphi study with a multidisciplinary Dutch panel of 32 experts in SDM and medical education.

### **Results**

After 3 Delphi rounds, consensus was reached on 4 EPAs: 1) the resident discusses the desirability of shared decision making with the patient, 2) the resident discusses the options for management with the patient, 3) the resident explores the patient's preferences and deliberations, and 4) the resident takes a well-argued decision together with the patient. Consensus was also reached on 18 associated behavioural indicators. Of the 32 experts, 30 (94%) agreed on this list of SDM EPAs and behavioural indicators.

### **Conclusions**

The authors succeeded in developing EPAs and associated behavioural indicators for SDM for postgraduate medical education to improve the quality of SDM training and the application of SDM in clinical practice. These EPAs are characterised as process EPAs for SDM in contrast with content EPAs related to diverse medical complaints. A next step is the implementation of the SDM EPAs in existing competence-based workplace curricula.

## Introduction

Shared decision making (SDM) is the current preferred approach to involve patients in medical decision making and is considered the pinnacle of good patient care.<sup>1-6</sup> In this interactive process, clinicians and patients work together to make deliberate decisions based on the patient's informed preferences and clinical evidence.<sup>7</sup>

Although the importance of SDM is recognised by both clinicians and patients,<sup>8,9</sup> SDM is not routinely applied in clinical practice.<sup>10,11</sup> This performance gap has resulted in more emphasis on training in SDM worldwide<sup>12,13</sup> and including SDM in important medical competence frameworks.<sup>14,15</sup> The low consistency in application of SDM in routine clinical practice may reflect the complexity of transfer between learning and practising SDM skills.<sup>12,13,16</sup>

We expect that supporting this transfer will enhance sustainable implementation of SDM in professional practice. This transfer is assumed to be most effective when complex skills are learned within the authentic clinical environment, triggered by powerful experiences and driven by reflection on clinical performance.<sup>17-19</sup> Although we expect that integrating SDM in self-directed workplace learning will be effective, the lack of consensus on the needed competences for SDM in clinical practice may negatively affect desired training outcomes.<sup>20,21</sup>

Postgraduate medical education is believed to be the ideal learning environment for self-directed workplace learning of complex competences.<sup>22</sup> The transfer of complex competences to clinical practice is optimised in many postgraduate medical training programmes by formulating entrustable professional activities (EPAs).<sup>23-26</sup> While competences are generic in nature – combining attitude, knowledge and behaviour – EPAs are formulated in the language of the profession that translates these competences into clinical practice. EPAs are used to support focused observation and feedback and can therefore be used to foster the integration of complex SDM behaviour into the learner's repertoire.<sup>18,19</sup> The aim of this study was to reach consensus on EPAs for SDM and associated behavioural indicators that need to be taught during postgraduate medical education.

## Method

### Context

We aimed to develop EPAs for SDM that can be used in all medical specialties. In the Netherlands, medical specialty departments coordinate the curricula of Dutch postgraduate medical education, based on national requirements set by the Royal Dutch

Medical Association. The duration of the training programmes varies between 2 and 7 years, depending on the specialty, and the programmes balance workplace-based training and formal education. Since 2015, postgraduate medical specialty training programmes in the Netherlands have been required to train residents according to the CanMEDS competence framework. For most medical specialties, these competences are translated into specific EPAs used to determine the development of the resident and the level of supervision needed.<sup>24, 27</sup> In some postgraduate curricula, SDM is mentioned as an important theme or as one of the communication competences although the specific tasks and behaviours that are needed in clinical practice are not spelled out.

## **Design**

We conducted a modified online Delphi study among Dutch experts between April and August 2017 to reach consensus on SDM EPAs and underlying behavioural indicators for postgraduate medical education. The Delphi technique is a widely used consensus method for medical education research.<sup>28-31</sup> This technique uses multiple iterations of questionnaires or ‘rounds’ to reach agreement on a specific topic; for each successive round, the researcher feeds back the results of the previous round. At least 2 successive rounds must be carried out to reach consensus.<sup>32-34</sup> We developed the list of EPAs and behavioural indicators used in the first Delphi round by using existing literature and an interview study. First, A.B. reviewed key publications describing SDM frameworks, competences and behaviours,<sup>13, 21, 35-37</sup> complemented by the snowball method and relevant citations from the Web of Science. Second, we conducted an interview study with Dutch experts in SDM, doctor–patient communication and medical education. A.B. conducted 17 semi-structured face-to-face interviews. All interviews were audiotaped, transcribed and thematically analysed during an iterative process of data collection and analysis. Combining the findings of the literature review and interviews, we then formulated the EPAs and behavioural indicators according to ten Cate’s guidelines.<sup>24</sup> We discussed this list with our national advisory board, consisting of SDM experts, and edited this list until our research team, representing a variety of backgrounds (medical doctors, researchers in SDM and educationalists), reached consensus regarding the content and formatting of our questionnaire.

## **Participants**

We compiled a list of potential expert panel members using purposive sampling,<sup>38</sup> based on expertise and special interest in SDM, doctor–patient communication and medical education. Because general practice vocational training has a long tradition of including training in medical communication, experts working in this field were preferred. The full list included 1) clinicians active in routine patient care; 2) patient representatives with a special interest in SDM; 3) trainers, coordinators and educational developers in medical communication, SDM, or evidence-based medicine (EBM); and 4) researchers

in SDM, medical communication and/or patient participation. We invited 57 potential expert panel members via an email with information about the purpose of the study, procedure and time investment. We then invited those who agreed to participate to the first Delphi round after obtaining informed consent. During the study, all expert panel members who finished a previous round were invited to participate in the next Delphi round. A research assistant pseudonymised all survey data before analysis to maintain the experts' anonymity.

### **Data collection**

We performed a 3-round modified online Delphi study using the web-based service tool Qualtrics (Qualtrics, Provo, Utah). Figure 1 summarises the focus of each round and their outcomes. The first, second and third Delphi rounds lasted 2, 3 and 6 weeks, respectively (Round 1, April 19 to May 2; Round 2, May 29 to June 19; Round 3, July 13 to August 25). After piloting the first-round questionnaire with 7 experts, we modified the text and layout of the questionnaire.

We aimed to achieve consensus on EPAs that residents are able to carry out after completing their postgraduate education. We presented these 2 statements for each EPA and behavioural indicator: 'I do like to include this EPA/behavioural indicator in the educational curriculum' and 'this EPA/behavioural indicator is applicable in clinical practice.' Experts were asked to rate the EPAs and behavioural indicators on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree). In the first exploratory round, respondents rated a list of EPAs and behavioural indicators on these 2 statements. In each round, we provided open text boxes for comments and feedback (e.g. clarification of scores and suggestions for textual changes and additional EPAs and behavioural indicators). We assessed the demographic characteristics of the participants during the first round.

We started the second round by providing an overview of the absolute personal scores and mean group scores resulting from the first round, for each questionnaire item, and a new version of the questionnaire, reflecting revisions we had made to the EPAs and behavioural indicators after our analysis of the first round. Again, we asked experts to rate each EPA and behavioural indicator on the 2 statements used in the first round. In this round, we aimed 1) to reach consensus on which EPAs and behavioural indicators needed to be included in a near-final list and 2) to revise again those EPAs and behavioural indicators for which there was still not consensus.

The third round had 2 parts. First, we presented the behavioural indicators on which our experts had not reached consensus in the second round and which we had reformulated after the analysis of the second round. We asked the experts to re-rate the reformulated



behavioural indicators, informing them that the new versions would be added to the final list of EPAs and behavioural indicators if they reached consensus during this round. Second, we presented a list of EPAs and behavioural indicators on which they had reached consensus in the second round. We asked the experts this question: 'Do you agree with this near-final list of SDM EPAs and behavioural indicators for postgraduate medical education?' Response options were 'yes' and 'no.'

### **Data analysis**

We analysed the quantitative components of the questionnaires using descriptive statistics in SPSS 24 for Windows (IBM Corp., Armonk, New York). Since there are no standard definitions for consensus in a Delphi study,<sup>28</sup> the research team agreed to define consensus on individual EPAs and behavioural indicators in the first 2 rounds as a median score of  $\geq 6$  and  $\geq 75\%$  of the expert panel assigning a score of  $\geq 6$  to the statement, 'I do like to include this EPA/behavioural indicator in the educational curriculum.' We focused on this statement since we aimed to develop a complete overview of SDM EPAs and behavioural indicators that need to be included in the education curriculum. We defined consensus on the near-final list of EPAs and behavioural indicators as  $\geq 80\%$  agreement of the expert panel in Round 3.<sup>28</sup>

A.B. grouped all the qualitative feedback provided in the open text boxes to identify recurring themes, which the research team used after each round in discussing whether the EPAs and behavioural indicators should be reformulated and if so, how. A professional translator translated the final EPAs and behavioural indicators into English, and then a native Dutch speaker proficient in English and terms specific to SDM and medical education translated them back into Dutch to verify the accuracy of the translations. The research team approved the final English translation.

### **Ethical approval**

Ethical approval was obtained from the Ethical Review Board of The Netherlands Association for Medical Education (file number 894).

## **Results**

### **Delphi procedure**

Of the 57 invited potential expert panel members, 35 consented to participate (a response rate of 61%). The first round was completed by 32 expert panel members (a response rate of 91%). Two experts did not complete the questionnaire due to a lack of time, and 1 expert decided not to participate due to a lack of knowledge of medical education. All 32 experts who completed the first round also completed the second and third rounds.

The experts' ages ranged from 31 to 61 years (a mean of 47 years), and 21 were women (66%). All professional backgrounds that we considered relevant were represented in our expert panel (see Table 1 for participant characteristics).

**Table 1.** Demographics of participants (n = 32) on an expert panel for a national Delphi study to identify entrustable professional activities and associated behavioural indicators for shared decision making in postgraduate medical education, 2017<sup>a</sup>

Characteristic	n (%) <sup>b</sup>
Age in years (SD)	47 (9.7)
Gender: Female	21 (66)
Expertise in SDM <sup>c</sup>	
Lecturer <sup>d</sup>	24 (75)
Researcher	14 (44)
Clinical specialist	11 (34)
General practitioner	5 (16)
Orthopaedic surgeon	2 (6)
Paediatrician	1 (3)
Medical oncologist	1 (3)
Radiation oncologist	1 (3)
Physiotherapist	1 (3)
Behavioural scientist	8 (25)
Policy officer	5 (16)
Patient representative	3 (9)

Abbreviation: SDM, shared decision making.

<sup>a</sup> All participants were Dutch who were chosen for their expertise and special interest in SDM, doctor–patient communication and medical education.

<sup>b</sup> Data are no. (%) unless otherwise indicated.

<sup>c</sup> More than one area of expertise is possible.

<sup>d</sup> Clinician–teacher, teacher, trainer in SDM, educational developer, educationalist, educational coordinator.

## Delphi rounds

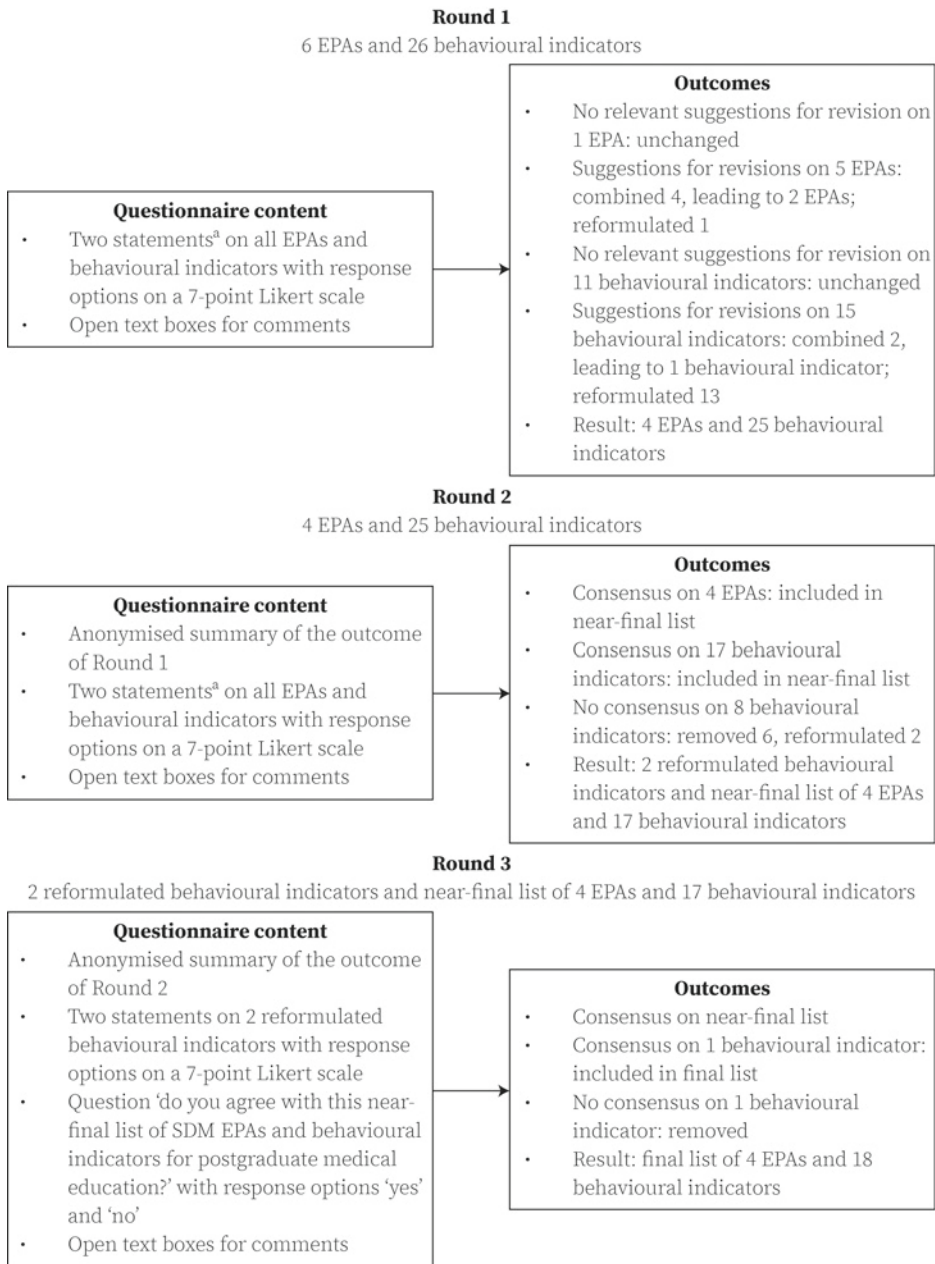
*Round 1* – In the first round, we presented 6 EPAs and 26 behavioural indicators to the expert panel (for a summary of the rounds see Figure 1 and Appendix A). We revised 5 EPAs using the experts' feedback. Due to overlap between 2 EPAs ('The resident tailors the communication to the patient's personal context' and 'the resident informs the patient about the desirability of shared decision making') and their associated behavioural indicators, we combined those 2 EPAs into 'the resident discusses the desirability of shared decision making with the patient' and rearranged their associated behavioural indicators under this new EPA. Experts also mentioned overlap between 2 other EPAs: 'The resident explores the patient's preferences' and 'the resident assists the patient in deliberating the options' and their associated behavioural indicators. Therefore, we rearranged all behavioural indicators under this newly formulated EPA:

‘The resident explores the patient’s preferences and deliberations.’ Because the experts evaluated the EPA ‘the resident informs the patient about the options for management’ as too directive, we reformulated this EPA as ‘the resident discusses the options for management with the patient.’ We did not change the EPA ‘the resident takes a well-argued decision together with the patient’ because the experts evaluated it positively and made no suggestions for revision.

Of the 26 behavioural indicators presented, we revised 15 before Round 2, using the experts’ qualitative feedback (see Appendix A). We combined the 2 behavioural indicators ‘the resident clarifies how the patient’s preferences relate to their perspective and personal goals and values’ and ‘the resident counsels the patient in deliberating the options, taking perspectives and personal goals and values into account’ into a new behavioural indicator: ‘The resident discusses whether the patient’s preferences fit in sufficiently with their perspective and personal goals and values.’ Furthermore, we made minor textual changes to 13 of the 15 revised behavioural indicators. We left the remaining 11 behavioural indicators unchanged because they were evaluated positively and/or the experts offered no suggestions for revision.

*Round 2* – We presented the 4 EPAs and 25 behavioural indicators resulting from Round 1 in the second round (see Figure 1 and Appendix A). Because consensus was reached and the experts provided no relevant qualitative feedback on the 4 EPAs during Round 2, we included the unchanged EPAs in the near-final list. Consensus was reached on 17 behavioural indicators. Because the experts did not provide any relevant suggestions for change, we included these indicators unchanged in the near-final list. Of the 8 behavioural indicators on which no consensus was reached, we reformulated 2 using the experts’ qualitative feedback. The behavioural indicator ‘the resident introduces own preferences into the deliberation in a neutral manner’ was reformulated as ‘the resident introduces own preferences where indicated.’ The behavioural indicator ‘the resident involves information from other concerned health care professionals, relatives and friends about the (preferences of the) patient in the deliberations, if contributing to the decision-making process’ was reformulated as ‘the resident includes the information provided by involved third parties (including health care professionals, relatives and friends) if this is relevant for the deliberation of preferences.’ We removed the remaining 6 behavioural indicators because the experts did not reach consensus and did not provide any relevant suggestions for revision.

**Figure 1.** Overview of questionnaire content and outcomes, by Delphi round, for a study of entrustable professional activities (EPAs) and associated behavioural indicators for shared decision making for postgraduate medical education, 2017



Abbreviations: EPA, entrustable professional activity; SDM, shared decision making.  
<sup>a</sup> 'I do like to include this EPA/behavioural indicator in the educational curriculum' and 'this EPA/behavioural indicator is applicable in clinical practice.'

*Round 3* – In the third round, we presented the 2 behavioural indicators we had reformulated as a result of Round 2 and the near-final list of 4 EPAs and 17 behavioural indicators on which the experts had reached consensus in Round 2 (see Figure 1 and Appendix A).

The experts rated the 2 reformulated behavioural indicators. No consensus was reached on the behavioural indicator ‘the resident introduces own preferences where indicated’ because only 56% of the experts scored  $\geq 6$  on the statement ‘I do like to include this behavioural indicator in the educational curriculum.’ The main argument given was that the resident’s preference might influence the patient too much in the decision-making process since it is hard to state a preference in a neutral manner. We added the behavioural indicator ‘the resident includes the information provided by involved third parties (including health care professionals, relatives and friends) if this is relevant for the deliberation of preferences’ to the final list since consensus was reached with a median score of 6, and 81% of the experts had a score  $\geq 6$  (see Table 2).

After 3 Delphi rounds, consensus was reached on 4 SDM EPAs and 18 behavioural indicators for postgraduate medical education (see Table 2). Of the 32 experts, 30 (94%) agreed on this list of SDM EPAs and behavioural indicators. The 2 experts who did not agree with this list did not give any qualitative feedback. All 4 EPAs on which consensus was reached also received high ratings on the statement ‘this EPA/behavioural indicator is applicable in clinical practice’; however, this statement was scored  $\geq 6$  by  $\geq 75\%$  of the expert panel on only 11 of the 18 behavioural indicators on which consensus was reached (see Table 2).

**Table 2.** Final list of entrustable professional activities (EPAs) and associated behavioural indicators for shared decision making for postgraduate medical education on which an expert panel reached consensus for a national Delphi study, with scores, 2017<sup>a</sup>

EPAs and associated behavioural indicators	I do like to include this EPA/behavioural indicator in the educational curriculum. <sup>b</sup>		This EPA/behavioural indicator is applicable in clinical practice. <sup>b</sup>	
	Median (IQR)	Score ≥ 6	Median (IQR)	Score ≥ 6
<b>The resident discusses the desirability of shared decision making with the patient.</b>	7 (1)	91%	6 (1)	88%
Explains that shared decision making is desirable, as a choice needs to be made	6 (2)	75%	6 (2)	72%
Explains the objective of shared decision making and the way to approach this process	6 (1)	81%	6 (1)	59%
Clarifies the patient's perspective (ideas, concerns, and expectations) and personal goals and values	7 (1)	91%	6 (0)	84%
Coaches the patient during the decision-making process in expressing personal considerations, always taking the patient's intellectual level and health literacy into consideration	6 (1)	84%	6 (1)	63%
<b>The resident discusses the options for management with the patient.</b>	7 (0)	100%	6 (1)	97%
Discusses the relevant options for management (including the wait-and-see option), based on up-to-date knowledge about these options and available evidence-based guidelines and recommendations	7 (1)	100%	6 (1)	81%
Tailors the minimally required information about the options to the patient's need for information, the patient's perspective and personal goals and values	6 (1)	78%	6 (1)	72%
Provides clear, objective, and structured information about the options	7 (1)	97%	6 (1)	88%
Discusses the potential burden of treatment and the chances of favorable or unfavorable outcomes for each option	6 (1)	94%	6 (1)	75%
Uses or refers to available evidence-based patient education and advisory materials (e.g. websites like the Dutch thuisarts.nl, or decision aids) to support the decision-making process	6 (1)	84%	6 (2)	75%
Checks how the information about the options is understood and interpreted, and if necessary provides sufficient time to consider the information	7 (1)	97%	6 (1)	91%

**Table 2.** Continued

EPAs and associated behavioural indicators	I do like to include this EPA/behavioural indicator in the educational curriculum. <sup>b</sup>		This EPA/behavioural indicator is applicable in clinical practice. <sup>b</sup>	
	Median (IQR)	Score ≥ 6	Median (IQR)	Score ≥ 6
<b>The resident explores the patient's preferences and deliberations.</b>	7 (1)	97%	6 (1)	91%
Clarifies the perceptions and preferences regarding the options	7 (1)	88%	6 (1)	72%
Clarifies the motivation, practicability, and feasibility of the options, taking the patient's personal context into consideration	6 (1)	78%	6 (1)	66%
Includes the information provided by involved third parties (including health care professionals, relatives, and friends) if this is relevant for the deliberation of preferences	6 (0)	81%	6 (1)	69%
Summarizes the main deliberations on the different options and checks whether this is correct for the patient	7 (1)	88%	6 (2)	75%
<b>The resident takes a well-argued decision together with the patient.</b>	7 (1)	94%	6 (1)	84%
Adjusts the timing of the decision making to the patient's pace, while taking the potential medical urgency into consideration	6.5 (1)	88%	6 (1)	84%
Comes to a decision together with the patient, based on the most important deliberations	7 (1)	91%	6 (1)	88%
Checks whether the patient agrees with the decision and discusses the practical consequences and the further implementation of the decision	6.5 (1)	91%	6 (1)	81%
Records the decision and the underlying motivation for the decision in the patient's medical file	7 (1)	81%	6 (1)	78%

Abbreviation: IQR, interquartile range.

<sup>a</sup> All participants on the panel were Dutch who were chosen for their expertise and special interest in SDM, doctor-patient communication, and medical education. Consensus on individual EPAs and behavioural indicators in all 3 rounds was defined as a median score of ≥ 6, and ≥ 75% of the expert panel assigning a score of ≥ 6 to the first statement.

<sup>b</sup> The expert panel indicated their agreement with the 2 statements for each EPA and associated behavioural indicators on a 7-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = more or less disagree, 4 = undecided, 5 = more or less agree, 6 = agree, 7 = strongly agree.

## Discussion

### Summary of main findings

In this Delphi study, a multidisciplinary Dutch panel of 32 experts reached consensus on 4 EPAs and 18 associated behavioural indicators for SDM that residents should be trained in during postgraduate medical education to increase the routine application of SDM. The 94% (n = 30) agreement on the near-final list indicates a high degree of consensus.

### Reflection on main findings

The developed EPAs, which are in line with well-known SDM models,<sup>35,36</sup> describe SDM behaviours formulated for the end-stage proficiency level of postgraduate medical training and aim to deliver clinicians that are able to routinely apply adequate SDM.<sup>23</sup> The underlying behavioural indicators support tailored learning processes by providing room to address the building blocks of the EPAs, depending on individual learning needs during workplace learning. The intention of the developed EPAs is to align theory and practice and bridge competences by describing units of professional practice.<sup>24</sup> In the 2015 CanMEDS physician competence framework, the operationalisation of SDM is generic and described in 3 enabling competences. These focus on adapting SDM to the unique needs and preferences of each patient and to his or her clinical condition and circumstances; facilitation of discussions with patients and their families in a respectful, nonjudgmental and culturally safe manner; and use of communication skills and strategies to support informed patient decisions regarding their health.<sup>14</sup> Our SDM EPAs are intended to describe the underlying process of decision making, which may take place over several clinical encounters. They integrate competence domains, such as medical knowledge, communication, collaboration and EBM. In proceeding in this manner, we intended to develop EPAs that Warm et al categorised in their 2014 study on the mapping of observable practice activities for residents as process oriented. These EPAs must be distinguished from content-oriented EPAs, which are specific for the medical discipline (e.g. evaluating urinary incontinence in the medical discipline of urology).<sup>39</sup> In a 2019 scoping review of EPAs, Shorey and colleagues looked at 12 studies that all focused on the development of these specialty-specific EPAs, mostly for medical graduate education.<sup>26</sup> The SDM EPAs developed in this study may support their implementation, as SDM requires a context-specific application of competences mapped to concrete clinical tasks of the medical discipline, taking the medical needs and the values and preferences of the patient into consideration.<sup>40</sup>

### Implications

A next step is the implementation of the SDM EPAs in existing competence-based workplace curricula. A review of the literature on the effects of training SDM showed that most interventions with health professionals consisted of single training sessions



and that sustainable application of SDM in clinical encounters diminished over time.<sup>12, 41-43</sup> Longitudinal workplace training is necessary to bridge the transfer gap between learning and sustainable application in clinical practice and to support integration of the SDM EPAs into the professional repertoire of future clinicians.<sup>22</sup> The identified EPAs can be used as a tool for observing the SDM process in clinical encounters and for providing meaningful feedback based on these observations. For the SDM EPAs to support the development of expertise, individual learning processes should be a starting point to prevent using the EPAs as a box-checking exercise. In line with how EPAs are currently used in medical specialty training, the identified EPAs may also guide the assessment of the resident's level of competence. Additionally, the EPAs can be incorporated into the continuous professional education of clinical supervisors to enhance their SDM competence since adequate role modelling is essential in workplace-based learning. Because SDM is a key component of EBM and literature shows that residents learn complex skills such as patient-centred communication optimally when these skills are integrated with medical expertise,<sup>18,19</sup> we suggest integrating SDM EPAs into the postgraduate EBM curricula.<sup>17,19</sup> Further research needs to address potential barriers to and facilitators for learning SDM and to provide learners with examples of concrete language to practise SDM during their clinical encounters.

### **Strengths and limitations**

To our knowledge, this is the first study on EPAs and behavioural indicators for SDM. We believe the Delphi technique is a suitable approach to gain consensus on EPAs and behavioural indicators; we limited direct influence of other panel members and weighted individual opinions equally by having the experts fill in questionnaires anonymously and individually.<sup>29-31</sup> By feeding back the results of the previous round to the next, we intended to promote reconsideration of initial opinions in relation to other experts' ratings.

We believe the quality of the developed EPAs was improved by the differences in the participants' backgrounds and by the presence of all backgrounds we considered relevant. The quality of these EPAs may make it easier to implement them in postgraduate medical education. All 32 expert panel members who completed the first round completed the entire Delphi process, which reflects experts' interest in the theme, the importance of the study, and the quick succession of the rounds. For the first Delphi round, we used EPAs and behavioural indicators that we had developed based on our comprehensive preliminary work. Although in a traditional Delphi study, experts could have generated EPAs and behavioural indicators themselves, we believe that this approach would have been too time consuming for the experts. Our choice may have influenced the composition of the list of EPAs and behavioural indicators although we intended to minimise such influence by encouraging the experts to give qualitative

feedback. Based on our analysis of the experts' input, we determined no substantial changes to the content of the EPAs and behavioural indicators were needed; this result seems to confirm the appropriateness of the EPAs and behavioural indicators that we developed for the study.

We limited our implementation of this Delphi study to the national level, in the Netherlands, because SDM is very sensitive to language and culture. Nonetheless, the EPAs include generic elements that other countries can adapt to their national needs. We decided not to invite residents to participate in this Delphi study despite the intended implementation in postgraduate medical training because we believe that the concepts of EPAs and SDM are too complex for residents. However, including residents might have given us more insight into the transfer gap they face when being trained in SDM.

### **Conclusion**

We succeeded in developing EPAs and associated behavioural indicators for SDM for postgraduate medical education to improve the quality of SDM training and the application of SDM in clinical practice.

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## **Appendix A**

Entrustable professional activities and associated behavioural indicators, presented by round, from a national Delphi study, 2017<sup>a</sup>

Round 1	Round 2	Round 3
<b>The resident...</b>	<b>The resident...</b>	<b>The resident...</b>
<p><b>...tailors the communication to the patient's personal context<sup>b</sup></b></p> <ul style="list-style-type: none"> <li>• Clarifies the patient's perspective (ideas, concerns and expectations) and personal goals and values, while consistently tailoring communication.<sup>c,d</sup></li> <li>• Clarifies the patient's motivation and level of health literacy as regards shared decision making, and tailors communication to the roles as desired in the consultation.<sup>c,d,e</sup></li> <li>• Coaches the patient during the decision-making process in expressing personal considerations, always taking the patient's intellectual level and health literacy into consideration.<sup>c</sup></li> </ul> <p><b>...informs the patient about the desirability of shared decision making<sup>b</sup></b></p> <ul style="list-style-type: none"> <li>• Clarifies that in the current situation shared decision making is desirable.<sup>c,e,f</sup></li> <li>• Explains the process, objective and importance of shared decision making.<sup>c,d,f</sup></li> </ul>	<p><b>...discusses the desirability of shared decision making with the patient</b></p> <ul style="list-style-type: none"> <li>• Clarifies the patient's perspective (ideas, concerns and expectations) and personal goals and values.<sup>c</sup></li> <li>• Explains that shared decision making is desirable, as a choice needs to be made.<sup>c</sup></li> <li>• Explains the objective of shared decision making and the way to approach this process.<sup>c</sup></li> <li>• Tailors communication to the patient's motivation for being involved in shared decision making.<sup>g</sup></li> <li>• Coaches the patient during the decision-making process in expressing personal considerations, always taking the patient's intellectual level and health literacy into consideration.</li> </ul>	<p><b>...discusses the desirability of shared decision making with the patient</b></p> <ul style="list-style-type: none"> <li>• Explains that shared decision making is desirable, as a choice needs to be made.</li> <li>• Explains the objective of shared decision making and the way to approach this process.</li> <li>• Clarifies the patient's perspective (ideas, concerns and expectations) and personal goals and values.</li> <li>• Coaches the patient during the decision-making process in expressing personal considerations, always taking the patient's intellectual level and health literacy into consideration.</li> </ul>

### ...informs the patient about the options for management<sup>d</sup>

- Discusses the relevant options for management, based on up-to-date knowledge about these options and available evidence-based guidelines and recommendations.<sup>f</sup>
- Discusses the potential burden of treatment and chances of favourable or unfavourable outcomes for each option.<sup>e</sup>
- Tailors the minimally required information about the options to the patient's need for information, perspective and personal goals and values.<sup>e</sup>
- Provides clear, objective and structured information about the options.<sup>e</sup>
- Quantifies chances associated with each option as accurately as possible or describes these chances in neutral terms as feasible if quantification is impossible.
- Discusses chances as concretely as feasible, using natural frequencies, preferably with a denominator of 100 persons, and using positive and negative framing as well as a clear and relevant time frame.
- Visualises chances as simply as possible, using the same format, visual support (icon arrays) and the same denominator.
- Uses or refers to evidence-based patient education and advisory materials (e.g. websites like the Dutch thuisarts.nl, or decision aids) to support the decision-making process.<sup>f</sup>
- Checks how the information about the options is understood and interpreted, and if necessary provides sufficient time to consider the information.

### ...discusses the options for management with the patient

- Discusses the relevant options for management (including the wait-and-see option), based on up-to-date knowledge about these options and available evidence-based guidelines and recommendations.
- Tailors the minimally required information about the options to the patient's need for information, perspective and personal goals and values.
- Provides clear, objective and structured information about the options.
- Discusses the potential burden of treatment and chances of favourable or unfavourable outcomes for each option.
- Quantifies chances associated with each option as accurately as possible or describes these chances in neutral terms as feasible if quantification is impossible.<sup>e</sup>
- Discusses chances as concretely as feasible, using natural frequencies, preferably with a denominator of 100 persons, and using positive and negative framing as well as a clear and relevant time frame.<sup>e</sup>
- Visualizes chances as simply as possible, using the same format, visual support (icon arrays) and the same denominator.<sup>e</sup>
- Uses or refers to available evidence-based patient education and advisory materials (e.g. websites like the Dutch thuisarts.nl, or decision aids) to support the decision-making process.
- Checks how the information about the options is understood and interpreted, and if necessary provides sufficient time to consider the information.

### ...discusses the options for management with the patient

- Discusses the relevant options for management (including the wait-and-see option), based on up-to-date knowledge about these options and available evidence-based guidelines and recommendations.
- Tailors the minimally required information about the options to the patient's need for information, perspective and personal goals and values.
- Provides clear, objective and structured information about the options.
- Discusses the potential burden of treatment and chances of favourable or unfavourable outcomes for each option.
- Uses or refers to available evidence-based patient education and advisory materials (e.g., websites like the Dutch thuisarts.nl, or decision aids) to support the decision-making process.
- Checks how the information about the options is understood and interpreted, and if necessary provides sufficient time to consider the information.



Round 1	Round 2	Round 3
<p><b>The resident...</b></p> <p><b>...explores the patient's preferences<sup>b</sup></b></p> <ul style="list-style-type: none"> <li>• Clarifies the perceptions of the options and the preferences regarding the options.<sup>c,e</sup></li> <li>• Clarifies how the patient's preferences relate to their perspective and personal goals and values.<sup>b</sup></li> <li>• Clarifies the motivation, practicability and feasibility of the options, taking the patient's personal context into consideration.<sup>c</sup></li> <li>• Involves, when necessary, information from other concerned health care professionals, relatives or friends about the (preferences of the) patient.<sup>c,e</sup></li> </ul> <p><b>...assists the patient in deliberating the options<sup>b</sup></b></p> <ul style="list-style-type: none"> <li>• Counsels the patient in deliberating the options, taking perspectives and personal goals and values into account.<sup>b</sup></li> <li>• Introduces own preferences into the deliberation and ensures to leave enough space for the shared decision-making process.<sup>c,e</sup></li> <li>• Marks the main arguments the deliberation of the different options, and checks their correct expression and understanding by the patient.<sup>c,e</sup></li> </ul>	<p><b>The resident...</b></p> <p><b>...explores the patient's preferences and deliberations</b></p> <ul style="list-style-type: none"> <li>• Clarifies the perceptions and preferences regarding the options.</li> <li>• Discusses whether the patient's preferences fit in sufficiently with their perspective and personal goals and values.<sup>g</sup></li> <li>• Introduces own preferences into the deliberation in a neutral manner.<sup>e</sup></li> <li>• Clarifies the motivation, practicability and feasibility of the options, taking the patient's personal context into consideration</li> <li>• Involves information from other concerned health care professionals, relatives and friends about the (preferences of the) patient in the deliberation, if contributing to the decision-making process.<sup>e</sup></li> <li>• Summarises the main deliberations on the different options and checks whether this is correct for the patient.</li> </ul>	<p><b>The resident...</b></p> <p><b>...explores the patient's preferences and deliberations</b></p> <ul style="list-style-type: none"> <li>• Clarifies the perceptions and preferences regarding the options.</li> <li>• Introduces own preferences where indicated.<sup>g</sup></li> <li>• Clarifies the motivation, practicability and feasibility of the options, taking the patient's personal context into consideration.</li> <li>• Includes the information provided by involved third parties (including health care professionals, relatives and friends) if this is relevant for the deliberation of preferences.</li> <li>• Summarises the main deliberations on the different options and checks whether this is correct for the patient.</li> </ul>

...takes a well-argued decision together with the patient	...takes a well-argued decision together with the patient	...takes a well-argued decision together with the patient
<p>Adjusts the timing of the decision-making to the patient's pace.<sup>f</sup></p> <p>Comes to a decision together with the patient, based on both perspectives taking the patient's preferences into account.<sup>e</sup></p> <p>Checks whether the patient agrees with the decision and discusses practical consequences and further implementation of the decision.</p> <p>Records the decision and underlying motivation for the decision in the patient's medical file.<sup>f</sup></p> <p>Evaluates the decision and if necessary makes adjustments in consultation with the patient.</p>	<p>Adjusts the timing of the decision-making to the patient's pace, while taking a potential medical urgency into consideration.</p> <p>Comes to a decision together with the patient, based on the most important deliberations.</p> <p>Checks whether the patient agrees with the decision and discusses practical consequences and further implementation of the decision.</p> <p>Records the decision and the underlying motivation for the decision in the patient's medical file.</p> <p>Evaluates the decision at a later stage and if necessary makes adjustments in consultation with the patient.<sup>g</sup></p>	<p>Adjusts the timing of the decision-making to the patient's pace, while taking a potential medical urgency into consideration.</p> <p>Comes to a decision together with the patient, based on the most important deliberations.</p> <p>Checks whether the patient agrees with the decision and discusses practical consequences and further implementation of the decision.</p> <p>Records the decision and the underlying motivation for the decision in the patient's medical file.</p>

<sup>a</sup> Participants were 32 Dutch experts in shared decision making and medical education from a variety of disciplines. The experts used a Dutch version of the information presented here. The English version was created by having a professional translator translate the Dutch into English, and then a native Dutch speaker proficient in English and terms specific to SDM and medical education translated the information back into Dutch (to verify the accuracy of the translations).

<sup>b</sup> Combined for next round.

<sup>c</sup> Rearranged for next round.

<sup>d</sup> Removed content for next round.

<sup>e</sup> Reformulated for next round.

<sup>f</sup> Added content for next round.

<sup>g</sup> Removed for next round.



## CHAPTER 3

# Residents' shared decision-making performance

Anouk Baghus, Esther Giroldi, Jasper van Geel, Arthur Leferink, Marjolein van de Pol, Ariëtte Sanders, Patrick Dielissen, Isabella Bisschop, Arwen Pieterse, Jean Muris, Angelique Timmerman, Trudy van der Weijden. Shared decision-making performance of general practice residents: an observational study combining observer, resident and patient perspectives. *Family Practice*. 2024;41(1):50-59

## **Abstract**

### **Background**

Shared decision making (SDM) is considered fundamental to person-centred care. However, applying SDM may be a challenge for residents in general practice, since it is a complex competence which requires integration of knowledge and skills from several competence domains.

### **Objective**

To support learning of SDM during medical residency, we aimed to gain insight in Dutch residents' observed and perceived SDM performance in general practice.

### **Methods**

We evaluated residents' SDM performance from an observer, resident and patient perspective. Consultations of first- and third-year residents were recorded. Trained observers used the validated Observing Patient Involvement (OPTION<sup>5</sup>) scale to assess observed SDM performance of residents in 98 actual recorded consultations. Perceived SDM performance was evaluated by residents and patients completing validated SDM questionnaires, supplemented with questions about (the context of) the consultation and perceived relevance of SDM immediately after the consultation. The data were analysed using descriptive statistics (mean, SD, minimums and maximums) and explorative bivariate analyses.

### **Results**

The residents' observed mean SDM performance was 19.1 (range, 0-100, SD = 10.9), mean resident self-reported SDM performance was 56.9 (range, 0-100, SD = 18.5), and mean patient reported SDM performance was 73.3 (range, 0-100, SD = 26.8). We found a significant and positive correlation between observed SDM performance and residents' perceived relevance of SDM for the consultation ( $t = 4.571$ ,  $P < 0.001$ ) and the duration of the consultation ( $r = 0.390$ ,  $P < 0.001$ ).

### **Conclusions**

This study showed that there is room for increasing awareness of the potential incongruence between observed and perceived SDM performance during medical residency, in order to facilitate the implementation of SDM in clinical practice.

## Background

Person-centred care is an important core value of general practice,<sup>1,2</sup> as the focus is on the patient as a person in their individual context, rather than solely on the disease.<sup>3</sup> Shared decision making (SDM) is considered fundamental in person-centred care.<sup>3</sup> <sup>4</sup> In SDM, clinician and patient work together to make a deliberate decision based on the clinician's expertise and the patient's values and preferences, combined with the available scientific evidence.<sup>4,5</sup>

SDM may be considered challenging, especially for young clinicians, as it requires an integration of several competence domains, such as communication, medical expertise, collaboration and scholarship in the clinical encounter.<sup>6-8</sup> Yet, experienced clinicians are often unaware of potential SDM incompetence, as in their perception they already involve patients in decision making, although the occurrence of SDM during encounters is limited.<sup>9-11</sup> This suggests that current SDM training is still insufficiently tailored to the needs of future clinicians. As the focus is on clinical workplace learning during medical residency, SDM competence is expected to be developed specifically in this period.<sup>12-14</sup> However, multiple challenges are faced in learning during medical residency. These challenges include residents' perceived limited medical knowledge of the options at stake, strong personal preferences in the decision being made, lack of good role models and residents' cognitions on patients' ability and motivation to be involved in decision making.<sup>6, 15-17</sup>

To support learning of SDM during medical residency, we need to get insight into the SDM performance of residents, as the current SDM performance of residents is yet unknown. To capture the complexity of the decision-making process, evaluation of observed performance and experiences during the clinical encounter are relevant.<sup>18, 19</sup> The research questions of this study were: 1) what is the observed SDM performance of residents?; 2) how do residents themselves and their patients perceive the application of SDM?; and 3) how does the observed residents' performance relate to their self-perception of SDM application during the encounter?

## Methods

### Study design

We conducted a quantitative descriptive study using recorded consultations and questionnaires, which focused on observations and perceptions of the decision-making process during these consultations.

## Setting and participants

This study was conducted with residents from four general practice (GP) training institutes in the Netherlands. During their first and third year of the three-year GP specialty training, residents work in general practice. GP supervisors are available to provide direct supervision when indicated. A characteristic of specialty training is that residents mainly learn through workplace learning, where they gain increasing autonomy and responsibility for increasingly complicated medical problems.<sup>20</sup> In the formal curriculum of Dutch GP specialty training, SDM is mainly integrated in communication training as a separate skill (Appendix A). This education focuses on providing theory and on practising skills during a limited number of scheduled communication training sessions throughout specialty training.

First- and third-year GP residents of the Dutch GP training institutes in Maastricht, Amsterdam, Nijmegen and Leiden were informed about the study aims and procedure during a training day at the GP training institute. Residents who were interested in participating received an information letter. Residents were aware that we studied their SDM performance level, although we did not specify which indicators were assessed. Participating residents were compensated with a €25 gift card. Patients received verbal and written information about 'a study on doctor-patient communication' from one of the researchers in the waiting room of the general practice. If the patient was under 18, also the accompanying parent(s) were informed. Patients received no financial compensation for their participation.

## Data collection

One of the researchers visited the residents in their general practices during a morning or afternoon clinic between August 2017 and December 2019. During this clinic, the consultations were video-recorded. Whenever this was not possible due to technical reasons or objections of the patient, the consultation was audio-recorded. Patients were eligible if they had a good enough command of the Dutch or English language. Patients were not included or excluded based on the diagnosis or decision at stake. We collected the participants' demographic characteristics after the encounter. Consultations were included if a decision was made.

## SDM measures

*Shared decision-making questionnaires* – For the evaluation of perceived SDM performance, the researcher provided residents and patients with questionnaires to fill out directly after the consultation. We used the following SDM questionnaires validated in Dutch: the SDM-Q-Doc (residents) and the SDM-Q-9 (patients).<sup>21-23</sup> Both scales consist of nine items, which are rated on a six-point Likert scale (0, 'strongly disagree' – 5, 'strongly agree'). In residents, the questionnaire was supplemented with questions about the context

of the consultation – (un)known patient, emergency consultation, initial or follow-up consultation, – the reason for encounter, and the decision being made. To measure how relevant residents and patients considered SDM for their consultation, we added the following question to be rated on the same six-point Likert scale: ‘How relevant was SDM in this consultation’ (residents); ‘For me it was important to be involved in the decision made in this consultation’ (patients).

*Observing Patient Involvement (OPTION) scale* – After finishing data collection in general practice, the validated Observer OPTION<sup>5</sup> scale was used to assess SDM performance in the recorded consultations from an observer perspective.<sup>24, 25</sup> This scale consists of five items to assess SDM performance on a five point Likert scale (0: no effort – 4: exemplary effort). These items are based on the conceptual framework of SDM, as described by Elwyn et al.<sup>26</sup> Two observers independently scored the recorded consultations. The sequence of the consultations was randomised by using stratified randomisation to minimise observer bias. In case more than one medical decision was made during the consultation, the main decision was scored.

Before scoring the consultations, the observers (A.B., J.v.G.) were trained using the English OPTION<sup>5</sup> manual and coding sheet. The training was performed as follows: first, the research team (A.B., E.G., J.v.G., J.M., A.T., T.v.d.W.) read the manual thoroughly and then they independently scored five video-recorded consultations, as did a researcher experienced in using the OPTION<sup>5</sup>. All met to discuss the manual, the measure score sheet and scores. After one week, this process was repeated and the same five consultations were independently scored again. For calibration purposes, the two observers independently scored another five consultations after which they met to discuss their results and assessed inter-rater reliability (IRR) using an intra-class correlation coefficient (ICC). This process was repeated until an acceptable ICC of > 0.6 was established.<sup>24</sup> The ICC on the total OPTION<sup>5</sup> score was 0.86, including an ICC > 0.6 on all individual OPTION<sup>5</sup> items. All consultations used for training and calibration were initially collected for another study and are therefore not part of the sample for the current study. We received permission for using these recordings for this purpose.

### **Data analysis**

The two observers included only consultations in which a medical decision was made, since we regard SDM as relevant in this situation. Disagreements were discussed within the research team. The scores of the OPTION<sup>5</sup> and questionnaires were digitised in SPSS 25 for Windows (IBM Corp., Armonk, New York). To ensure accuracy of the data, all digitised data were double-checked. We calculated means per OPTION<sup>5</sup> item scores from both observers and rescaled the total scores of OPTION<sup>5</sup> (range 0-20) to a 0-100 scale according to the manual.<sup>24</sup> To rescale the total scores of SDM-Q-Doc and SDM-Q-9



(range 0-45) to a 0-100 scale, we used means of individual item scores to replace missing values for up to two random missing values per consultation.<sup>21</sup> In case of more than two missing individual item scores, the total score was not calculated. We used descriptive statistics to determine means, SD, minimums and maximums for individual items and total scores. The total OPTION<sup>5</sup>, SDM-Q-Doc and SDM-Q-9 scores were normally distributed. Therefore, parametric tests were used to explore associations between potential clarifying variables regarding residents (age, gender, training year, training institute, clinical experience), patients (age, gender, educational level) and consultations (relevance of SDM, perception of SDM, duration of the consultation, (un)known patient, initial or follow-up consultation and emergency consultation) and total OPTION<sup>5</sup> score. We considered total OPTION<sup>5</sup>, SDM-Q-Doc and SDM-Q-9 scores as continuous variables. We used Pearson's correlation to explore associations between total OPTION<sup>5</sup> score and the continuous variables. We used independent sample t-test for discrete potential clarifying variables categorised in two groups and one-way ANOVA for discrete potential clarifying variables categorised in more than two groups (Appendix B).

### **Ethical approval and informed consent**

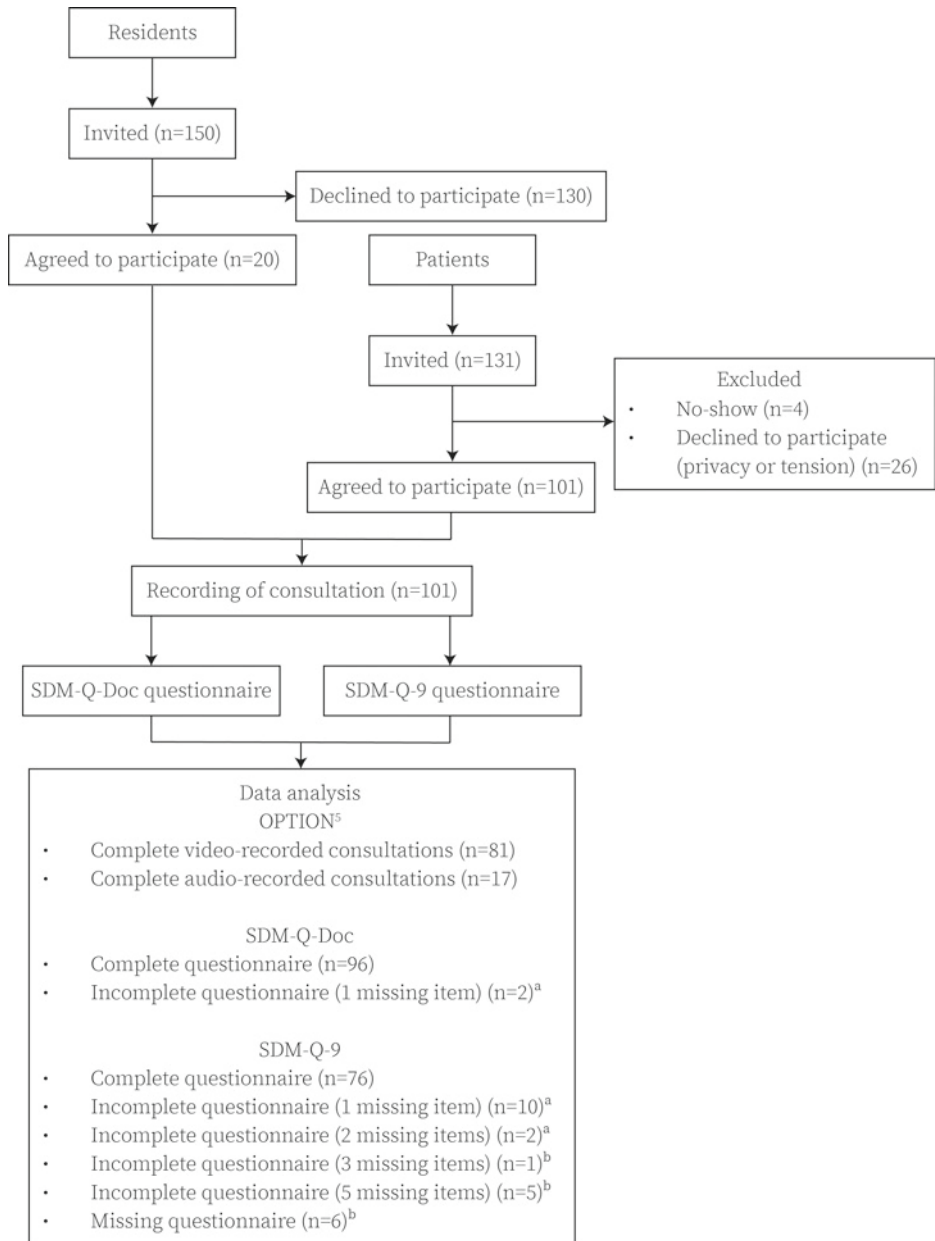
The Ethics Committee of the Dutch Association for Medical Education (NVMO) approved this study (file no. 894). Participating residents and patients gave written informed consent; GP supervisors gave verbal permission for visiting the practice.

## **Results**

### **Participant characteristics**

Of 150 GP residents invited, twenty agreed to participate in this study of which eleven were first-year residents and nine were third-year residents (see Table 1 and Appendix C). Reasons for not participating included busy schedules and feeling uncomfortable with consultations being recorded and assessed. All residents had prior clinical experience before entering GP specialty training. Of the 131 consultations scheduled at the clinics visited by the researchers, 101 patients agreed to participate (see Figure 1). Of the 101 consultations, three were not scored due to incomplete recordings. Of the remaining 98 recordings, 81 were video- and 17 were audio-recordings. All 98 consultations were included as there was a medical decision made in each consultation. Seventeen consultations concerned children visiting the resident accompanied by a parent. Most patients consulted because of musculoskeletal, respiratory or skin complaints. The consultations had a mean duration of 13.8 minutes. The mean score of the perceived relevance of SDM for the consultations was 2.9 for residents and 4.3 for patients (range, 0-5).

**Figure 1.** Flow-chart of the process of inclusion of participating general practice residents and patients, and the sources and number of data collected for a study of shared decision-making performance in medical residency, 2017-2019



Abbreviations: OPTION, Observing Patient Involvement; SDM-Q-Doc, shared decision-making questionnaire filled in by residents; SDM-Q-9, shared decision-making questionnaire filled in by patients

<sup>a</sup>These incomplete questionnaires are included in the total score of SDM-Q-Doc/SDM-Q-9

<sup>b</sup>These incomplete questionnaires are not included in the total score of SDM-Q-9

**Table 1.** Characteristics of participating general practice residents (n = 20), patients (n = 98) and consultations (n = 98), for a study of shared decision-making performance in medical residency, 2017-2019

<b>Resident characteristic</b>	<b>n (%)<sup>a</sup></b>
Age (mean in years [range])	30 [25-35]
Female	16 (80)
GP training year	
First year	11 (55)
Third year	9 (45)
Clinical experience before entering GP training	
In hospital setting only	7 (35)
In non-hospital setting only	3 (15)
In both hospital and non-hospital setting	10 (50)
Duration of clinical experience before entering GP training (mean in months [range])	31.7 [6-60]
Number of patient inclusions (mean [range])	4.9 [3-8]
General practice type	
Urban	17 (85)
Rural	3 (15)
Location of GP training institute	
Maastricht	6 (30)
Amsterdam	5 (25)
Nijmegen	4 (20)
Leiden	5 (25)
<b>Patient characteristic</b>	<b>n (%)<sup>a</sup></b>
Age (mean in years [range]) <sup>b,c</sup>	51 [18-85]
Adult patient	81 (83)
Female <sup>b</sup>	64 (65)
Educational level <sup>b,c,d</sup>	
Low	26 (32)
Middle	27 (33)
High	22 (27)
<b>Consultation characteristic</b>	<b>n (%)<sup>a</sup></b>
Type of consultation	
Unknown patient	57 (58)
Initial consultation	65 (66)
Emergency consultation	0 (0)
Reason for encounter <sup>e</sup>	
General and unspecified	3 (3)
Digestive	6 (6)
Eye	4 (4)
Ear	5 (5)
Cardiovascular	3 (3)
Musculoskeletal	16 (16)

**Table 1.** Continued

<b>Consultation characteristic</b>	<b>n (%)<sup>a</sup></b>
Neurological	1 (1)
Psychological	5 (5)
Respiratory	23 (24)
Skin	24 (25)
Endocrine/metabolic and nutritional	4 (4)
Pregnancy, childbearing, family planning	3 (3)
Female genital	1 (1)
Male genital	1 (1)
Nature of decision	
Wait-and-see	20 (20)
Diagnostic test	20 (20)
Medication <sup>f</sup>	41 (42)
Referral <sup>g</sup>	12 (12)
Intervention <sup>h</sup>	5 (5)
Relevance of SDM for the consultation	
SDM relevance according to resident (mean (SD))	2.9 (1.3)
SDM relevance according to patient (mean (SD)) <sup>i</sup>	4.3 (1.3)
Duration of consultation (mean in minutes (SD))	
	13.8 (5.4)

Abbreviations: GP, general practice; SDM, shared decision making; SD, standard deviation.

<sup>a</sup> Data are n (%) unless otherwise indicated.

<sup>b</sup> Based on data of adult patients and accompanying parent of patient under 18.

<sup>c</sup> 6 missing cases.

<sup>d</sup> Educational level of patients was grouped in low (no education, primary education, lower secondary education), middle (higher secondary education, technical/vocational further education) or high (bachelor, master).

<sup>e</sup> Classification of reason for encounter according to International Classification of Primary Care (ICPC).

<sup>f</sup> Decisions regarding starting, continuing or quitting medication, or adjustments to the doses.

<sup>g</sup> Decisions regarding referrals to primary care health care professions (e.g., physiotherapist) or hospital.

<sup>h</sup> Decisions regarding interventions in general practice (e.g., surgical, cryotherapy, bandages).

<sup>i</sup> 10 missing cases.

### **Level of SDM performance**

*Observed performance of SDM* – The inter-rater reliability on the total OPTION<sup>5</sup> score was high (ICC, 0.87), including an ICC > 0.6 on all individual OPTION<sup>5</sup> items. The mean total OPTION<sup>5</sup> score for all 98 consultations was 19.1 (SD = 10.9). Table 2 shows the scores per OPTION<sup>5</sup> item. Scores per OPTION<sup>5</sup> item ranged from no effort to moderate or skilled effort. The lowest mean score was found for ‘supporting deliberation’ (item 2), which means that on average residents put little effort into supporting patients in considering the decision options.

*Residents' perceptions of SDM performance* – The mean total SDM-Q-Doc score was 56.9 (SD = 18.5), see Table 3. Item 4 (informing about the benefits and risks of the options) and item 7 (negotiation) were rated lowest by residents, while item 5 (investigation of patient's understanding and expectations) and item 9 (arrangement of follow-up) received the highest scores.

**Table 2.** Observed shared decision-making performance scores as assessed using OPTION<sup>5</sup>: individual item scores and total score for consultations, for a study of shared decision making-performance in medical residency, 2017-2019

<b>Observer OPTION<sup>5</sup> per item, scale 0-4<sup>a</sup></b>	<b>OPTION<sup>5</sup> (n = 98)</b>			
	<b>Mean</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Item 1.</b> For the health issue being discussed, the clinician draws attention to or confirms that alternate treatment or management options exist or that the need for a decision exists. If the patient rather than the clinician draws attention to the availability of options, the clinician responds by agreeing that the options need deliberation.	0.7	0.6	0	3
<b>Item 2.</b> The clinician reassures the patient or re-affirms that the clinician will support the patient to become informed or deliberate about the options. If the patient states that they have sought or obtained information prior to the encounter, the clinician supports such a deliberation process.	0.2	0.5	0	2
<b>Item 3.</b> The clinician gives information or checks understanding about the options that are considered reasonable (this can include taking no action), to support the patient in comparing alternatives. If the patient requests clarification, the clinician supports the process.	1.1	0.6	0	3
<b>Item 4.</b> The clinician makes an effort to elicit the patient's preferences in response to the options that have been described. If the patient declares their preference(s), the clinician is supportive.	1.0	0.7	0	3
<b>Item 5.</b> The clinician makes an effort to integrate the patient's elicited preferences as decisions are made. If the patient indicates how best to integrate their preferences as decisions are made, the clinician makes an effort to do so.	0.9	0.6	0	2.5
<b>Observer OPTION<sup>5</sup> total score, scale 0-100<sup>b</sup></b>	<b>Mean</b>	<b>SD</b>	<b>Minimum</b>	<b>Maximum</b>
<b>Total score</b>	19.1	10.9	2.5	55

Abbreviations: OPTION, Observing Patient Involvement; SD, standard deviation.

<sup>a</sup> Score on a scale of 0-4 (0 = no effort, 1 = minimal effort, 2 = moderate effort, 3 = skilled effort, 4 = exemplary effort).

<sup>b</sup> Score on a scale of 0-100, calculated as the sum of the five individual item mean scores and rescaled from 0-20 to 0-100.

**Table 3.** Residents' and patients' perceived shared decision-making performance scores as assessed using the SDM-Q-Doc and SDM-Q-9: item scores and total score for consultations, for a study of shared decision-making performance in medical residency, 2017-2019

SDM-Q-Doc / SDM-Q-9 per item, scale 0-5 <sup>a</sup>	SDM-Q-Doc (n = 98) Residents		SDM-Q-9 (n = 92) Patients	
	Mean (SD)	Missing (n (%))	Mean (SD)	Missing (n (%))
<b>Item 1.</b> I made clear to my patient that a decision needs to be made / My doctor made clear that a decision needs to be made	2.9 (1.2)	0 (0)	3.6 (1.7)	0 (0)
<b>Item 2.</b> I wanted to know exactly from my patient how he/she wants to be involved in making the decision / My doctor wanted to know exactly how I want to be involved in making the decision	2.6 (1.2)	0 (0)	3.5 (1.8)	0 (0)
<b>Item 3.</b> I told my patient that there are different options for treating his/her medical condition / My doctor told me that there are different options for treating my medical condition	2.7 (1.4)	1 (1.0)	3.6 (1.7)	2 (2.2)
<b>Item 4.</b> I precisely explained the advantages and disadvantages of the treatment options to my patient / My doctor precisely explained the advantages and disadvantages of the treatment options	2.3 (1.4)	0 (0)	3.3 (1.9)	6 (6.5)
<b>Item 5.</b> I helped my patient understand all the information / My doctor helped me understand all the information	3.3 (0.9)	0 (0)	4.4 (1.1)	9 (9.8)
<b>Item 6.</b> I asked my patient which treatment option he/she prefers / My doctor asked me which treatment option I prefer	2.9 (1.5)	0 (0)	3.6 (1.8)	8 (8.7)
<b>Item 7.</b> My patient and I thoroughly weighed the different treatment options / My doctor and I thoroughly weighed the different treatment options	2.3 (1.2)	1 (1.0)	3.3 (1.8)	10 (10.9)
<b>Item 8.</b> My patient and I selected a treatment option together / My doctor and I selected a treatment option together	3.0 (1.4)	0 (0)	3.8 (1.6)	7 (7.6)
<b>Item 9.</b> My patient and I reached an agreement on how to proceed / My doctor and I reached an agreement on how to proceed	3.7 (1.3)	0 (0)	4.0 (1.7)	6 (6.5)
<b>SDM-Q-Doc / SDM-Q-9 total score, scale 0-100<sup>b</sup></b>	<b>Mean (SD)</b>	<b>Missing (n (%))</b>	<b>Mean (SD)</b>	<b>Missing (n (%))</b>
<b>Total score</b>	56.9 (18.5)	0 (0)	73.3 (26.8)	6 (6.5) <sup>c</sup>

Abbreviations: SDM-Q, shared decision-making questionnaire; SD, standard deviation.

<sup>a</sup> Score on a scale of 0-5 (0 = strongly disagree, 1 = disagree, 2 = more or less disagree, 3 = more or less agree, 4 = agree, 5 = strongly agree).

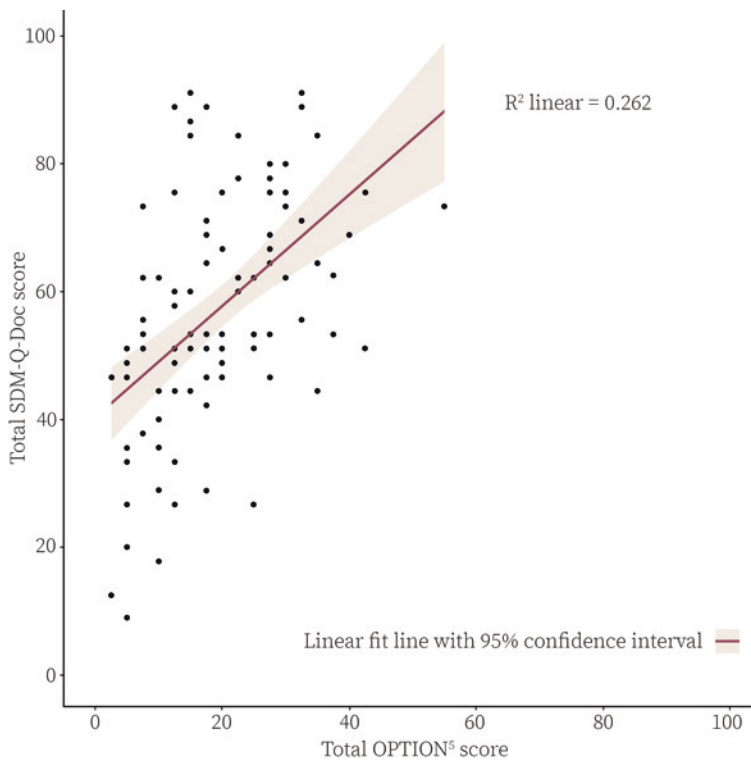
<sup>b</sup> Total score on a scale of 0-100, calculated as the sum of the nine individual item mean scores and rescaled from 0-45 to 0-100.

<sup>c</sup> In case of > 2 missing individual item scores, the total score was not calculated.

*Patients' perceptions of SDM performance* – The mean total SDM-Q-9 score was 73.3 (SD = 26.8), see Table 3. Patients scored all items higher compared to the residents, yet their scores showed the same patterns. Patients also gave the lowest scores to items 4 and 7, and the highest scores to items 5 and 9.

*Associations between observed and perceived SDM performance* – There was a significant positive correlation between the total OPTION<sup>5</sup> score and residents' perception (SDM-Q-Doc) ( $r = 0.512$ ,  $p < 0.001$ ), see figure 2, and patients' perception of SDM (SDM-Q-9) ( $r = 0.214$ ,  $p = 0.048$ ) (see Appendix B).

**Figure 2.** Scatter plot of observed shared decision-making performance (total OPTION<sup>5</sup> scores) ( $n = 98$ ) and residents' perceptions of shared decision-making performance (total SDM-Q-Doc scores) ( $n = 98$ ) for a study of shared decision-making performance in medical residency, 2017-2019



*Associations between observed SDM performance and resident, patient and consultation characteristics* – OPTION<sup>5</sup> scores of consultations in which residents found SDM relevant (score  $\geq 3$  on a six-point Likert scale ranging from 0-5) were compared to scores of consultations in which residents found SDM not relevant (score  $< 3$ ). Observed performance was significantly higher ( $p < 0.001$ ) in consultations for which SDM was perceived to be more relevant (OPTION<sup>5</sup> score 22.3) compared to consultations for which

SDM was perceived to be less relevant (OPTION<sup>5</sup> score 12.7). OPTION<sup>5</sup> scores were also significantly and positively associated with the duration of the consultation ( $r=0.390$ ,  $p<0.001$ ), which means that more SDM was observed in longer consultations.

## Discussion

This study aimed to describe both observed and perceived SDM performance of residents in GP specialty training. Observed SDM performance of residents was much lower compared to residents' and patients' perceptions of SDM performance. Observed SDM performance was somewhat higher if the resident felt SDM to be relevant in the consultation and if more time was spent during the consultation.

### Reflection on main findings

The overall OPTION<sup>5</sup> score of 19.1 was lower than the benchmark of 25.<sup>27, 28</sup> Several explanations can be given for this finding. Residents may not be aware of what SDM actually entails and how to apply SDM in clinical practice. Besides, a high cognitive load is present in learning SDM as a complex skill that integrates medical knowledge and expertise, evidence-based medicine and communication skills.<sup>6, 16</sup> Still, residents' performance was slightly lower than SDM performance of experienced GPs in most studies.<sup>27, 29, 30</sup> This may explain that experienced clinicians often perceive that they already involve patients in decision making, although the occurrence of SDM during encounters is limited.<sup>9-11</sup> Therefore, clinical supervisors might not be able to be adequate role models and coaches in residents' learning process of SDM at the workplace and to provide them with good examples of SDM in clinical encounters.

Since SDM requires context-specific application, it could be justifiable to perform less SDM in situations in which this is not relevant from a medical perspective. However, it is doubtful whether residents are able to recognise situations in which SDM is relevant. Residents' beliefs in this respect are affected by multiple contextual factors (e.g. patient characteristics, clinical scenario and residents' personal preferences regarding the options).<sup>6, 9, 16</sup> They tend to consider SDM especially relevant for complex decisions with important consequences for patient and care (e.g. end-of-life, lifestyle, chronic disease), whereas for many decisions in general practice the complexity is relatively low (e.g. simple decisions on curative treatment for patients without co-morbidity or risk factors for complications).<sup>16</sup> It is also notable that research showed that residents appear to prefer paternalistic decision making more often than experienced clinicians.<sup>7</sup> Therefore, residents may very well underestimate the actual relevance of SDM, causing residents' underperformance as observed in this study. Patients' experiences with residents' SDM performance are quite positive. This indicates that patients are satisfied with care and



residents' clinical performance even though the patients considered the relevance of SDM higher than the residents did and residents behaved rather directive from an observer perspective. However, the patients might have been unaware that their preferences mattered in decision-making since residents hardly introduced this topic during most consultations.

Both residents and patients perceived the SDM performance of residents to be relatively effective compared to how performance was rated by observers. Although SDM-Q-Doc and SDM-Q-9 scores differ widely throughout literature, these positive perceptions are consistent with previous studies.<sup>31-33</sup> The three instruments intend to capture different perspectives on SDM performance: observable behaviour and residents' and patients' experiences with the applied behaviour. Contrasting perceived and observed consultation performance, and learners becoming aware of potential incongruences, may be an important stimulus for fostering motivation to learn SDM. Although self-assessment of performance is often inaccurate, it may reveal learners' unawareness of their level of competence to guide future learning.<sup>34</sup>

### **Strengths and limitations**

The main strength of this study is that we combined different approaches to describe residents' SDM performance in actual consultations. Since there is no single-best instrument to measure SDM performance, we chose the validated instruments most relevant to our research questions.<sup>18, 21, 23, 25</sup> Combining OPTION<sup>5</sup>, SDM-Q-Doc and SDM-Q-9 may capture a broad perspective on residents' performance.<sup>18, 19</sup> Since the three instruments intend to measure different constructs related to SDM, i.e. observations of behaviour versus reported perceptions on performance, it is inherent that scores may differ between the instruments used.

To maximise the reproducibility of our findings, we trained observers comprehensively<sup>24</sup> and indeed achieved a high degree of inter-observer reliability. We also tried to limit observer bias by randomising the order in which consultations were scored. Hereby, we intended to minimise comparison between consultations and scores within one resident.

The results of this study showed residents' SDM performance at group-level. We were not specifically focusing on individual performance, nor did we perform multivariate analyses. However, when the data were analysed clustered per resident this did not yield different results. Our study was performed in four GP training institutes to increase the generalisability of our results.

An important limitation of our study is possible selection bias. Residents with a more positive attitude toward SDM and more critical attitude toward their own performance

and learning might have been more likely to participate. We consider that our results underestimate the actual extent to which GP residents are incompetent. Accordingly, the gap between desired and actual performance is probably larger than we described. In addition, the residents were aware that we studied SDM. Therefore, they might have focused more on applying SDM during the study compared to their regular clinics, causing an overestimation of their observed SDM performance. Although residents mentioned that they also make an extra effort to practise SDM when being observed,<sup>16</sup> the effect of recording their performance might be limited as residents are used to video-record their consultations.<sup>35</sup> We recorded a complete clinic during the visit to the residents' general practice. By doing so, we prevented residents' selection of best example recordings and included a realistic representation of consultations in daily practice. Finally, data collection took place between 2017 and 2019.

### **Implications for educational practice**

Our findings suggest that more focused and consistent attention should be paid to SDM during medical residency. Feedback based on actual recorded consultations of residents with their patients during educational training sessions, can support the development of SDM proficiency. This method might be useful to increase awareness of the need to learn to perform SDM, since residents' self-perception may reflect a more positive picture compared to performance from an observer perspective. Self-monitoring during consultations and self-assessment of SDM performance after consultations may also direct the development of SDM skills, including how to tailor the phases to an individual patient in a particular consultation.<sup>26, 36</sup> Furthermore, observed or recorded consultations provide a starting point for reflection on attitudes toward (the relevance of) SDM and gaps in SDM knowledge and skills. Our findings also suggest that training should pay attention to recognising the relevance of SDM, which may range from 'small' to complex decisions including the knowledge about potential options. Furthermore, the aforementioned contextual factors that might come into play need to be addressed in learning SDM. Additionally, training should also focus on how to support patients through the SDM process, adjusted to the preferred role of the individual patient. Since residents' learning mainly takes place at the workplace, supervisors should be equipped with didactic competences to support residents' reflection on SDM, by improving their own SDM performance to become a good role model and coach.

### **Conclusion**

This study showed that there is room for increasing awareness of the potential incongruence between observed and perceived SDM performance during medical residency, in order to facilitate the implementation of SDM in clinical practice. Attention needs to be paid to how to tailor the process of SDM in a context sensitive manner throughout consultations, as well as residents' beliefs and motivation towards

performing SDM, using observation and external feedback on actual performance to integrate SDM in workplace learning.

### **Acknowledgements**

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## Appendix A

Characteristics of shared decision-making training at the four general practice specialty training institutes included in this study, for a study of shared decision-making performance in medical residency, 2017-2019

- Part of one or two stand-alone communication training sessions during formal training days in year 1 and/or 3
- Focus on training of SDM as a communication skill, generally without integration of medical knowledge and evidence-based medicine skills
- No explicit integration in workplace learning

## Appendix B

Associations between resident, patient and consultation variables on observed shared decision-making performance of general practice residents using OPTION<sup>5</sup> (n = 98), for a study of shared decision-making performance in medical residency, 2017-2019

	<b>Pearson correlation r-value or independent sample t-test t-value or one-way ANOVA F-value</b>	<b>p-value</b>
<b>Resident-level variable</b>		
Age	-0.006 <sup>a</sup>	0.957
Gender	1.366 <sup>b</sup>	0.175
Training year	0.359 <sup>b</sup>	0.720
Training institute	0.861 <sup>c</sup>	0.464
Clinical experience before entering GP training (setting) <sup>d</sup>	0.722 <sup>c</sup>	0.489
Clinical experience before entering GP training (duration in months)	-0.033 <sup>a</sup>	0.750
<b>Patient-level variable</b>		
Age	0.178 <sup>a</sup>	0.090
Gender	0.947 <sup>b</sup>	0.346
Educational level <sup>e</sup>	0.046 <sup>c</sup>	0.955
<b>Consultation-level variable</b>		
Relevance of SDM according to resident <sup>f</sup>	4.571 <sup>b</sup>	<0.001
Relevance of SDM according to patient <sup>g,h</sup>	not analysed	not analysed
Resident perception of SDM (SDM-Q-Doc)	0.512 <sup>a</sup>	<0.001
Patient perception of SDM (SDM-Q-9)	0.214 <sup>a</sup>	0.048
Duration of the consultation (minutes)	0.390 <sup>a</sup>	<0.001
Initial or follow-up consultation	0.714 <sup>b</sup>	0.477
Known or unknown patient	0.731 <sup>b</sup>	0.467

Abbreviations: GP, general practice; SDM, shared decision making

<sup>a</sup> Pearson correlation

<sup>b</sup> Independent sample t-test

<sup>c</sup> One-way ANOVA

<sup>d</sup> Setting of clinical experience before entering GP training is grouped in hospital setting only, non-hospital setting only and both hospital and non-hospital setting

<sup>e</sup> Educational level of patients is grouped in low (no education, primary education, lower secondary education), middle (higher secondary education, technical/vocational further education) and high (bachelor, master)

<sup>f</sup> SDM relevance was grouped in not relevant (score 0, 1 or 2) and relevant (score 3, 4 or 5) on the question 'how relevant was SDM in this consultation'

<sup>g</sup> SDM relevance was grouped in not relevant (score 0, 1 or 2) and relevant (score 3, 4 or 5) on the question 'for me it was important to be involved in the decision made in this consultation'

<sup>h</sup> The association between mean total OPTION<sup>5</sup> score of consultations in which SDM was relevant versus not relevant according to the patient was not analysed, since only 6 consultations were found not relevant

## **Appendix C**

Characteristics and number of patient inclusions per participating general practice resident (n = 20) for a study of shared decision-making performance in medical residency, 2017-2019



Resident	Sex (male/ female)	Age (years)	Location of GP training institute	GP training year	Clinical experience before entering GP training (months)	Specialty of clinical experience before entering GP training (months)	Practice setting	Total video- recorded consultations (n)
1	f	31	Maastricht	3	28	Psychiatry (6) Surgery (16) Elderly care medicine (6)	Urban, solo	3
2	m	29	Maastricht	1	24	Cardiology (12) Neurology (12)	Rural, group	5
3	f	25	Maastricht	1	6	Elderly care medicine (6)	Urban, health centre	4
4	f	29	Nijmegen	1	36	Emergency medicine (24) Intensive care (12)	Rural, duo	4
5	f	26	Maastricht	1	24	Paediatrics (12) Rehabilitation medicine (12)	Urban, health centre	4
6	f	29	Maastricht	3	19	Neurology (12) Elderly care medicine (7)	Urban, health centre	6
7	f	28	Maastricht	3	12	Insurance medicine (12)	Urban, health centre	8
8	f	31	Amsterdam	3	26	Internal medicine (11) Emergency medicine (9) Surgery (6)	Urban, health centre	8
9	f	34	Amsterdam	3	48	Gynaecology (24) Surgery (12) Internal medicine (6) Tropical medicine (6)	Urban, solo	5
10	f	35	Amsterdam	3	48	Gynaecology (48)	Urban, solo	4
11	f	35	Amsterdam	1	44	Internal medicine (18) Elderly care medicine (12) Rehabilitation medicine (8) Psychiatry (6)	Urban, solo	3
12	m	25	Leiden	1	12	Elderly care medicine (12)	Urban, solo	4

13	f	28	Nijmegen	1	33	Elderly care medicine (24) Emergency medicine (9)	Rural, health centre	4
14	f	30	Amsterdam	1	36	Internal medicine (12) Psychiatry (24)	Urban, health centre	6
15	f	34	Leiden	3	52	Tropical medicine (48) Physician for drivers' medical examination (4)	Urban, group	4
16	f	28	Nijmegen	1	24	Elderly care medicine (12) Emergency medicine (6) Psychiatry (6)	Urban, health centre	4
17	f	28	Leiden	1	24	Neurology (12) Internal medicine (12)	Urban, group	4
18	f	30	Leiden	3	24	General hospital care (24)	Urban, health centre	7
19	m	30	Leiden	1	30	Paediatrics (13) Elderly care medicine (17)	Urban, health centre	4
20	m	34	Nijmegen	3	60	Urology (42) Intensive care (6) Elderly care medicine (12)	Urban, health centre	6

Abbreviation: GP, general practice



## CHAPTER 4

# Residents' educational needs for learning shared decision making

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## **Abstract**

### **Objective**

To investigate how to optimise resident engagement during workplace learning of shared decision making (SDM) by understanding their educational needs.

### **Methods**

A qualitative multicentre study was conducted using video-stimulated interviews with 17 residents in general practice. Video recordings of residents' recent clinical encounters were used to facilitate reflection on their educational needs.

### **Results**

Data analysis resulted in five themes regarding residents' educational needs for learning SDM: awareness of the need for SDM; acquiring knowledge and skills needed to perform SDM; practising SDM; reflection and feedback; and longitudinal and integrated training; and awareness and motivation for performing SDM.

### **Conclusion**

Residents expressed a need for continuous attention to be paid to SDM during postgraduate medical education. That would help them engage in two parallel learning processes: acquiring the knowledge and skills necessary to perform SDM, and practising SDM in the clinical workplace. Alignment between the educational curriculum, workplace learning and resident learning activities is essential to operationalise SDM attitude, knowledge and skills into clinical performance.

### **Practice Implications**

The identified educational needs provide ingredients for fostering the development of SDM proficiency. The findings suggest that residents and clinical supervisors need parallel training to bridge the gap between education and clinical practice when learning SDM.

## Introduction

Shared decision making (SDM) is considered fundamental to patient-centred care since this approach encourages decisions that are consistent with patients' values and preferences.<sup>1-4</sup> Although clinicians and patients recognise the potential benefits,<sup>5, 6</sup> implementation of SDM in clinical practice is still limited.<sup>7, 8</sup>

There has been a growing emphasis on the need for training to support the implementation of SDM. This has resulted in numerous SDM training programmes.<sup>9, 10</sup> Although training is considered a precondition for successful engagement with SDM in clinical practice, the effectiveness of these programmes is still limited.<sup>9-11</sup> This may reflect a transfer gap between acquiring SDM knowledge and skills, and subsequently translating them into clinical performance.

This transfer gap may be explained by SDM being a competence which requires integration of medical expertise and clinicians' perspectives, communication, clinical guidelines and patient preferences.<sup>2, 12-14</sup> This complexity is illustrated by the challenges faced when learning and applying SDM. These may include doubts about the benefits of SDM, discomfort with losing decision-making power, assumptions about patients preferring paternalism, or believing that they already involve patients.<sup>8, 15</sup> Furthermore, clinicians' SDM behaviour is influenced by contextual factors such as decision difficulty, the pre-existing relationship with the patient, time constraints and perceived lack of self-efficacy.<sup>16</sup>

Becoming proficient in an integrated competence requires longitudinal and applied learning.<sup>17, 18</sup> Therefore, the workplace is an ideal setting for learning SDM because it provides an authentic environment with impactful experiences and challenging situations.<sup>18-21</sup> Yet, most SDM training programmes are stand-alone interventions with minimal recognition of the need for applied learning.<sup>9, 11, 22</sup> We therefore expect that longitudinal workplace learning is necessary to bridge the gap between training and clinical practice and supports sustainable implementation of SDM.

Postgraduate medical education is a suitable period to learn SDM, given the focus on acquiring integrated competence in authentic clinical settings.<sup>11, 23</sup> Understanding learners' perceptions about their educational needs regarding SDM (defined in Appendix A) is a precondition for workplace learning, since educational activities that are in line with learners' expectations and objectives foster their intrinsic motivation for learning.<sup>24-26</sup> The aim of this study was to understand how to optimise resident engagement during workplace learning of SDM, by exploring their educational needs.

## Methods

### Study design

We conducted a qualitative multicentre study using video-stimulated interviews with general practice (GP) residents. We chose residents in this specialty because acquiring integrated competences in clinical practice is a core component of their training. We used video recordings of consultations between residents and their patients to link reflection on SDM performance and identification of educational needs to residents' personal authentic learning experiences. Video-stimulated interviews have proven useful when studying doctor-patient interactions.<sup>27-30</sup>

### Setting

This study was conducted in practices affiliated with Dutch GP training institutes in Maastricht, Amsterdam, Nijmegen and Leiden. Traditionally, general practice is characterised by generalist, person-centred and continuous care. In the Netherlands, SDM is part of these core values.<sup>31, 32</sup> Dutch GP specialty training lasts three years, including GP placements in the first and third years and clinical placements in the second year.<sup>33</sup> In general practice, a GP supervisor oversees the resident's competence development. Regular learning conversations are scheduled (e.g. to reflect on behaviours while observing (recorded) consultations, to receive feedback on performance and to identify learning questions). Workplace learning is blended with a weekly formal training day in small-group sessions. In the formal curriculum, SDM training is mainly integrated in communication education, with a focus on providing theory and practising skills in often infrequently scheduled sessions throughout training.

### Participants

We sought diversity in residents with respect to training year and institute, to include various levels of clinical experience and training in SDM. After gaining consent of curriculum coordinators and teachers, we approached 150 first- and third-year GP residents at the four training institutes following a convenience sampling technique.<sup>34</sup> We informed them about the study aims and procedure during a training day at the institute. Those interested in participation received an information letter. Residents knew that we were studying SDM. Participating residents received a €25 gift card as compensation.

Patients received oral and written information from a researcher in the waiting room of the general practice. If the patient was under 18, the accompanying parent(s) were informed. Participating patients received no compensation.

## Data collection

Data collection took place between August 2017 and May 2019. A trained researcher visited the resident during a morning or afternoon clinic. This researcher was not involved in the resident's GP training programme. The researcher was present to record and observe the consultations and take field notes about the atmosphere, (non)verbal communication and notable events related to SDM, as input for the subsequent interview. After each consultation, the resident filled in a questionnaire measuring context of the consultation – (un)known patient, emergency consultation, initial or follow-up consultation – reason for encounter and the decision discussed. Both the residents and patients filled in demographic characteristics and scored the relevance of SDM to this consultation on a 6-point scale (completely disagree – completely agree).

The researcher interviewed the resident directly after the observation or during the next training day. The researcher used an interview guide (Appendix B).<sup>27, 29</sup> First, the resident was invited to select one recorded consultation according to their personal need for reflection (an exemplary learning experience).<sup>29</sup> If the resident expressed no preference, the consultation was selected by mutual agreement, based on the resident's SDM relevance scores and the field-notes. Then the researcher explored the perceived medical goals of the consultations, relevant contextual factors and motivation for the resident's SDM relevance score.

Next, the resident and the researcher watched the recorded consultation. The resident was encouraged to pause the video when they felt they (should have) applied SDM, and to reflect on their thoughts, feelings and behaviours. The researcher could also pause the video at a moment considered important by the researcher to ask the resident to elaborate on motives for their behaviour (e.g. what were you trying to achieve at this moment?). The researcher prompted the resident to reflect on educational needs related to SDM (e.g. how did you learn this, what do you need to learn this?). Finally, we used an iterative process of data collection and analysis to refine the focus in subsequent interviews.

## Data analysis

The audio-recorded interviews were transcribed verbatim. The actual interactions in the video fragments used as input were summarised and integrated in the transcripts to provide contextual information for the analysis. We used NVivo 11 Pro software to support the qualitative data analysis.<sup>35</sup> We performed the framework method of thematic analysis.<sup>36, 37</sup> Following an inductive approach, we used open coding to identify and summarise information from the transcripts. Codes were grouped into potential themes and subthemes, which were revised and refined going back and forth between the transcripts and the developed codes.<sup>36, 37</sup> During this entire process, memo writing was used to guide the interpretation of themes.



The transcripts were coded independently by at least two researchers with backgrounds in medicine (AB/ES/FE/DR), health sciences (EG) or psychology (AT). Then, the codes were compared and discrepancies were discussed until consensus was reached. The research team reviewed and discussed potential (sub)themes after the analysis of the first five interviews and again after ten interviews to reflect on the structure of and connections between themes. We used a mapping approach to visualise relationships between themes. This informed interpretations of the study outcomes, with learning SDM as the central concept.<sup>36</sup>

### Ethical approval and informed consent

The Ethics Committee of the Dutch Association for Medical Education (NVMO) approved this study (file no. 894). Participating residents and patients gave written informed consent. GP supervisors gave permission to visit the practices.

## Results

### Demographic characteristics

Seventeen GP residents agreed to volunteer (Table 1): 10 first-year and seven third-year residents. Their mean age was 30 years and 15 of the 17 residents were female. All residents had prior clinical experience before entering GP specialty training.

**Table 1.** Characteristics of the GP residents, number of video-recorded consultations per resident and duration of interviews

<b>Characteristics of residents (n = 17)</b>	
Age (mean in years [range])	30 [25-35]
Female (n (%))	15 (88)
GP training year (n (%))	
First year	10 (59)
Third year	7 (41)
Clinical experience before entering GP training (mean in months [range])	29 [6-52]
General practice type (n (%))	
Urban	14 (82)
Rural	3 (18)
Location of GP training institute (n (%))	
Maastricht	6 (35)
Amsterdam	5 (29)
Nijmegen	3 (18)
Leiden	3 (18)
Video-recorded consultations per resident (mean [range])	4.7 [3-8]
Duration of interview (mean in minutes [range])	53 [40-68]

Abbreviation: GP, General Practice.

From the 108 consultations scheduled, 80 patients agreed to participate. Four patients were no-shows, and 24 patients did not consent to the consultation being recorded, referring to needing privacy or feeling tense. Consultation characteristics are described in Appendix C.

Of the 17 interviews, nine took place on the day of the consultation. Due to the residents' busy schedules, the remaining eight interviews were conducted within three weeks, five of which occurred in the first week. The interviews lasted 40-68 minutes. After analysing 10 interviews, saturation was reached on the main themes emerging from the data. After coding all interviews, we had obtained a rich and meaningful understanding of these themes to enable answering the research question.

## Results of the interviews

We identified residents' educational needs for workplace learning about SDM across four themes that are connected in learning SDM: 1) acquiring knowledge and skills needed to perform SDM, 2) practising SDM, 3) reflection and feedback, 4) longitudinal and integrated training. We also identified an additional theme 'awareness and motivation for performing SDM'. Each theme is discussed in the following paragraphs, underpinned with interview quotes (Table 2).

**Table 2.** Quotes from video-stimulated interviews with residents about their educational needs for learning shared decision making

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### Theme 1: Acquiring knowledge and skills needed to perform SDM

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Q1	'I don't really feel like I have a sound structure for it in my head yet. It's not like "OK, I'm going to use SDM now. First, I have to do step one, and then this and this...". Because I really feel like I haven't had much education about it yet.' (Resident 9)
Q2	'It's hard for me to recognise a medical decision. When does it feel like a situation where the patient can participate in the decision? (...) It feels like I haven't found my way yet. When can I properly predict an SDM situation? And what is considered SDM and what is not? I have trouble recognising those situations.' (Resident 6)
Q3	'So I often think to myself: "What are the options really, and are there options?" I just find that difficult; that's my own uncertainty.' (Resident 3)
Q4	'If she wanted to go to the dermatologist, I would have sent her. If she wanted a stronger ointment, I would have given her that. It depended very much on what she wanted. (...) The context factor is that I'd never actually treated psoriasis before. (...) Yeah, I just don't have much experience with it, so it's quite difficult to be on top of it.' (Resident 14)
Q5	'If I know right away, "OK, this is it", if I have a clear diagnosis (...) then often I know the possible treatments and I can present them to the patient with confidence. Then I feel more comfortable discussing it with the patient, and if necessary, I can swing to the left or the right. But if I'm not sure what the problem is, I feel more uncertain about it and I want to do some research first.' (Resident 4)

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**Table 2.** Continued

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Q6	'Clarification of the patient's preferences and considerations: what I see in this consultation is that I'm taking it a bit easy with that. I look at her and think "Is she nodding, is she satisfied, is she going to go along with that?" instead of saying "What do you think about that?" or really giving the patient space for that.' (Resident 17)
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**Theme 2: Practising SDM**

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Q7	'So here, in practice, that's what I learn from instead of learning from the book or the formal training days.' (Resident 10)
Q8	'Videos are really a good incentive because when you're recording videos I start to exaggerate it [SDM] a bit. Now that you [the researcher] are here, I also exaggerate it a bit. And I hope that in this way it will become so ingrained that I'll do it in any case. Yes, even in more hasty consultations.' (Resident 14)
Q9	'I think that if you really see it in practice – not just talk afterwards about how I did that with a patient – if you also see your supervisor doing it, you get a lot of valuable things out of it. I find observation sessions in particular very instructive. And especially in the GP's own practice (...) those are certainly very valuable and I would like to see more of them.' (Resident 3)
Q10	'That you just practise it in a group: you have a kind of dialogue, you have to try it and others help you. That kind of roleplaying.' (Resident 2)
Q11	'Having example sentences of how you can implement SDM in your consultation (...) Having to really look at that moment: could I apply this or that sentence, and writing it down and having it next to you, for example.' (Resident 1)
Q12	'Now we have SDM as an emphasis for me, so we've been paying a bit more attention to that in the past month and will in the near future. For instance, we [resident and supervisor] watch a video together and then pay particular attention to that.' (Resident 14)
Q13	'When you discuss a case with your supervisor, you might have thought of two options. And then they reply, "Yes, but there is also an option three and an option four".' (Resident 2)

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**Theme 3: Reflection and feedback**

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Q14	'Looking back at this consultation, I really think "Gosh, I am not applying SDM" That helps with awareness, seeing what you're really doing. And when you're actually doing it, you're less aware of that. So I definitely think that watching the consultations already helps.' (Resident 16)
Q15	'If you want really good feedback, you have to do it face-to-face and not just watch a video, send it in and get an assessment back. Hear both sides. It's actually interesting to know why someone does or doesn't apply SDM (...) That can happen in a group, with your teacher at the institute, and certainly also with your GP supervisor.' (Resident 12)
Q16	'You mustn't record with the aim of discussing SDM, because then you're going to have a different conversation anyway. In fact, you should choose something as neutrally as possible, randomly, like this is from last week and I'll show it to you.' (Resident 7)
Q17	'Then I talked about this [SDM] in the group (...) my experience and how it had gone. Then a peer gave her opinion and said: "You could also have said...". And then I thought, "Oh well, I could have phrased it that way too" (...) So what helps me in that? I think that's just asking colleagues: "How do you do that?" And talking about your own experiences. Because that's something we perhaps don't do often enough: discussing our SDM experiences with each other and discussing how we would approach it.' (Resident 6)
Q18	'In the first year, the MAAS-Global [Dutch validated assessment instrument for doctor-patient communication] is obviously a big deal because you have to score high on it. So you turn in your very best video, and it's nice if you score well. But of course you have many consultations that don't run smoothly, where something goes wrong with SDM (...) You learn much more from those consultations than if you simply have to hand in a very good one.' (Resident 15)

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**Table 2.** Continued

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**Theme 4: Longitudinal and integrated training**

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- Q19 'It's really important that this is refreshed; I think repetition is important. But yeah, that's difficult because the programme is already so full. However, you could have it come back in other parts of the programme. For instance, if you're talking about diabetes and the annual monitoring for that, you could think about what you could do there with SDM. That sort of thing.' (Resident 3)
- Q20 'Perhaps it would be beneficial if a bit more attention was paid to this right away, to the whole picture, where we want to get in the end. Yes, before you start picking up all kinds of things. And the sooner you start doing that, the sooner you find out how useful it is when patients have a say.' (Resident 12)
- Q21 'The second half of the year you think, "Hey, now I have a bit more room for that in my head, because I have a few tools to do the initial phase of the consultation". And now with a bit more knowledge, a bit more experience, you can get a bit more involved with this.' (Resident 5)
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**Theme 5: Raising awareness and motivation for performing SDM**

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- Q22 'It takes so much time with people who have language barriers and the like. In the end, I feel that it doesn't do much good because they don't quite understand, or they say "I want to hear your opinion", and that's what I want to do. They actually ask for a more paternalistic approach. And when it [SDM] takes so much time and your clinic hours are running late, I can imagine that you're more inclined not to do it.' (Resident 16)
- Q23 'There's still a part of me that thinks I know what's best for the patient (...) I only spend time on it [SDM] if I feel that the patient has doubts about my choice, or if I've already noticed that they are not following my therapy or something (...) So I'm not the biggest Shared Decision Maker.' (Resident 1)
- Q24 'I can start listing all the diagnostics we can do and say that. Then they'll take the bait and bet on it while I think it's nonsense. Maybe it's better not to mention it or discuss it, or just do so quickly and steer them the other way. I know that... Obviously, it doesn't quite fit with SDM, but yes, that's what you do in practice.' (Resident 5)
- Q25 'Sometimes you come to a decision that makes you think: "Well, as a doctor I don't really agree with it, but okay." Then you make some concessions (...) Otherwise, you won't get anywhere with the patient (...) So there's a little give and take. It's not always what the doctor wants, because fortunately it doesn't work that way anymore.' (Resident 13)
- Q26 'I think this [SDM] is much more about bigger decisions: to operate or not, to have someone admitted, or to really start a lifestyle change or medication. Then it's about bigger things and it's good to do this.' (Resident 8)
- Q27 'They're used to a doctor who is a bit paternalistic, who says: "Well, we're going to do it like this". And then they're fine with it. If you tell them that it will be better, well then we'll do it, won't we? So it doesn't always lead to a negative experience for me; sometimes you get a bit of confirmation.' (Resident 5)
- Q28 'I don't think he [the supervisor] sees much point in this [SDM]... He doesn't use it himself, so he doesn't have much experience with it and he may not be able to give many tips. Of course it might help, but it's more useful if your supervisor agrees that it's good to make decisions together.' (Resident 16)
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Abbreviations: SDM, shared decision making; Q, quote.

### *Acquiring knowledge and skills needed to perform SDM*

The residents emphasised the need to obtain knowledge and skills enable translation of the concept of SDM into concrete actions in clinical practice. They expressed four specific educational needs: knowledge about the SDM process, knowledge about diagnostic and treatment options, communication skills needed for SDM, and skills for applying SDM in challenging situations.

*Knowledge about the SDM process* – Most residents expressed a need to acquire knowledge about the SDM process during communication training sessions on formal training days. The residents appeared to have different levels of knowledge, and they acknowledged the importance of understanding the phases (Q1) and benefits of SDM.

*Knowledge about diagnostic and treatment options* – Medical decision-making is challenging in general practice, given its wide range of reasons for encounters, options and uncertainties. Most residents expressed the need to acquire knowledge about when to apply SDM (Q2) and available options, particularly for common patient complaints. Experiencing uncertainty or a lack of knowledge about diagnostic or treatment options (including wait-and-see) made them feel less competent (Q3). As a result, they discussed fewer options with patients or left decisions to the patient (Q4). Clarity about the diagnosis and sufficient knowledge about the options help residents confidently deliberate with patients (Q5). The residents felt a need to learn about potential options through self-study, medical training and discussing clinical cases with their supervisors, teachers and peers.

*Communication skills needed for SDM* – Most residents felt that current SDM training is insufficient, except for exploring the patient’s reason for the encounter and related ideas, concerns and expectations. The residents especially mentioned the need to learn to let patients respond to the presented options and explore patients’ preferences (Q6). Table 3 reports the communication skills considered important for education.

*Skills for applying SDM in challenging situations* – Most residents mentioned challenging situations in clinical practice, such as patients leaving the decision to the resident: ‘you tell me, you’re the doctor,’ or patients demanding a specific inappropriate diagnostic or treatment option. Table 4 reports the challenging situations that the residents considered important in relation to SDM. They expressed a wish to discuss these situations with their supervisor, peers and teachers, and a wish for concrete examples of how to apply SDM in these situations.

**Table 3.** Communication skills that residents consider important for workplace learning of SDM

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- Explore the patients' perspective (ideas, concerns and expectations)
  - Let patients respond to the presented diagnosis
  - Communicate information about the available diagnostic or treatment options in a simple, clear and neutral manner
  - Translate general probabilities and risks to individual patients
  - Communicate uncertainty about the options when there is no scientific evidence available about probabilities and risks
  - Use tools (e.g., patient decision aids, option grids) to support the decision-making process
  - Let patients respond to the presented options
  - Explore the patients' preferences
  - Introduce your own preferences on the available options in a neutral manner
  - Adapt SDM application to the individual patient, complaint and context of the consultation
  - Structure the steps of SDM throughout the consultation
  - Integrate SDM into the limited consultation time
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Abbreviation: SDM, shared decision making.

**Table 4.** Challenging situations for which residents want to learn skills for applying SDM in workplace learning

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- Patients who do not present a clear reason for the encounter (and related ideas, concerns and expectations)
  - Patients who present more than one complaint
  - Patients who are not willing to participate in decision-making
  - Patients who present a complaint for which the resident has a personal preferred option
  - Patients who experience difficulties in understanding information
  - Patients who do not agree with the diagnosis or proposed options
  - Patients who demand a specific diagnostic or treatment option
  - Patients who immediately agree with one of the resident's suggested options
  - Patients who leave decisions to the resident
  - Patients who are extremely talkative or very worried
  - Patients under the age of 18
- 

Abbreviation: SDM, shared decision making.

### *Practising SDM*

The residents emphasised that repeated practise in the workplace is essential to learning SDM (Q7), because confrontation with real patients and authentic clinical situations support their learning. Some residents make an extra effort to practise SDM when they are being observed or video recorded (Q8). The residents stressed the importance of having concrete examples about how to apply SDM during consultations. These examples could be created by observing supervisors applying SDM in their own practice (Q9), and by observing peers and SDM experts in video-recorded consultations during formal training days. Some residents also mentioned that roleplays with peers or simulated

patients can be useful (Q10). Especially helpful examples involve patients and decisions for which SDM is not obvious at first sight. Narratives with illustrative examples of sentences to apply in SDM were also seen as useful (Q11).

Most residents use learning questions to guide their learning process. When specifically targeted at SDM, this triggers practising and fine-tuning SDM during consultations, and stimulates continuous monitoring of their learning process (Q12). When residents face medical uncertainties regarding diagnosis or management options, they often consulted their supervisor during the consultation or in the learning conversation. The residents suggested that it would be helpful if supervisors proposed or actively challenged residents to produce alternative options (Q13). Furthermore, the residents considered clinical guidelines and evidence-based health information websites that list alternative options or include patient decision aids to be particularly useful.

### *Reflection and feedback*

Residents' SDM performance was evaluated by reflection and feedback on consultations, either by self-assessment or with their supervisors during learning conversations, and with teachers and peers during formal communication training. Observations (usually video-recorded consultations) are required for this evaluation. Most residents stressed that confrontation with their own incompetence when watching video-recorded consultations is a strong stimulating factor for learning (Q14). Discussing performance with supervisors, teachers and peers supports reflection and results in specific feedback and directions for future learning (e.g. suggestions for alternative SDM behaviour and example phrases) (Q15). This encourages residents to practise SDM and specify learning goals.

Often, residents expressed that they learned most from reflection and feedback about challenging situations and randomly selected consultations in which there was no focus on applying SDM (Q16). Suggestions from peers or teachers about how to integrate SDM were also considered supportive (Q17). Many residents criticised assessing video recordings using pre-defined checklists with communication skills, as this was not experienced instructive for learning SDM (Q18).

### *Longitudinal and integrated training*

Residents felt that repeated attention on SDM in their training is necessary for effective learning because SDM competence builds gradually. Longitudinal training contributes to continuous awareness of the significance of SDM and repetition and fine-tuning of personal performance. To fit longitudinal SDM training into their overloaded curriculum, some residents mentioned the importance of integrating SDM as a topic in medical and evidence-based medicine training (Q19).

Some residents suggested learning SDM early in GP specialty training because it may be hard to integrate SDM after they have developed their own manner of performing consultations (Q20). Other residents considered basic communication skills training necessary during the first six months of GP specialty training, and thought that SDM training could best start in the seventh month (Q21).

### *Awareness and motivation for performing SDM*

The residents were doubtful on whether SDM was appropriate in every consultation. They stated that a patient's motivation to be involved in a decision seemed to be related to age, intelligence, socioeconomic status and culture. A barrier to SDM was patients' not understanding information about their options or being unable to consider the consequences of a decision. The residents said that discussing options with patients with language barriers and low intelligence takes additional time and effort and still rarely resulted in SDM; in such cases residents preferred to take a paternalistic approach (Q22). Furthermore, residents' motivation to reveal the availability of several options to patients appeared to be strongly defined by what they considered the best decision. This resulted mostly from a feeling of responsibility towards the individual patient, society (e.g. healthcare costs) and other health care professionals (e.g. unnecessary referrals) and that they know what is best for their patients (Q23). Most residents mentioned that their own preferences prevented them from objectively presenting alternative options, as they felt that patients should choose the option they preferred (Q24). An exception was made when alternative options were needed to reassure patients or to preserve their relationship with patients (Q25). Most residents found SDM especially relevant to complex decisions that have important consequences for patients, which they believe are mainly made in a hospital setting. However, overall, the residents recognised that decisions in general practice about end-of-life, lifestyle, chronic diseases and psychosomatic complaints are also complex and should therefore be based on patients' preferences (Q26).

Motivation was also influenced by (implicit) feedback from patients: some residents described being discouraged by patients who seem satisfied with the resident's current (paternalistic) approach or respond negatively to attempts to perform SDM (Q27). Most often, the residents became aware of the importance of SDM from role models (e.g. supervisors and teachers) who emphasised this and set an example by involving patients in decisions (Q28) and by prioritising SDM in the curriculum of GP specialty training.

## **Discussion and conclusion**

In this study, we explored residents' educational needs regarding SDM in postgraduate medical education to gain insight into how to optimise their engagement during



workplace learning. Four educational needs were identified: acquiring knowledge and skills needed to perform SDM; practising SDM; reflection and feedback; and longitudinal and integrated training. We also identified an additional theme ‘awareness and motivation for performing SDM’.

### **Reflection on main findings**

The educational needs the residents identified seem to reflect two parallel learning processes: 1) acquiring knowledge and skills needed to perform SDM, and 2) practising SDM in the clinical workplace, embedded in longitudinal training. During both learning processes, raising awareness and motivation for performing SDM seems to be essential.

The residents perceived acquiring knowledge and skills to be indispensable to translating the concept of SDM into concrete performance in clinical practice. Also, they wanted knowledge about potential clinical situations in which SDM would be applied and knowledge about corresponding diagnostic and treatment options. The importance of developing knowledge and skills in SDM reflects Miller’s first two layers – ‘knows’ and ‘knows how’ –<sup>38</sup> and acknowledges the need to free cognitive space for applying SDM in authentic clinical situations,<sup>39</sup> reflecting the ‘does’ layer. The SDM learning process can therefore start during formal training sessions, implying that it is important to integrate SDM in the formal educational curriculum. However, residents also emphasised a need for a repeated process of practising, feedback and reflection in the workplace.<sup>19, 39-42</sup>

Practising SDM connects the educational curriculum and learning during clinical practice (e.g. clinical encounters). The residents perceived supervisors as crucial to this learning process, which resonates with previous findings on the role of supervisors as role models and coaches in workplace learning.<sup>43-45</sup> In this respect, supervisors may support operationalising the ‘shows how’ layer into clinical performance (‘does’), by stimulating reflection on residents’ perceptions regarding SDM and providing feedback about the application of SDM in residents’ clinical encounters and providing examples of potential alternative SDM behaviours. Supervisors need to facilitate a constructive learning environment to coach residents effectively.<sup>43, 44</sup> We believe supervisors must possess SDM proficiency and that their beliefs and behaviours in this respect set a good example for residents’ learning.<sup>43</sup> Since motivation and positive attitudes are essential for residents’ engagement in learning,<sup>46</sup> these can be supported by raising awareness of the importance of learning SDM. However, since clinicians also experience challenges in using SDM, supervisors should be supported in improving their own SDM performance.<sup>43, 47-49</sup> In addition, supervisors can help residents to become aware that there is a discrepancy between their current and required performance.<sup>41, 50</sup> Reflection on residents’ performance through feedforward feedback and exploration of their underlying beliefs and gaps in knowledge and skills direct the learning process towards proficient SDM

performance.<sup>41, 51</sup> Therefore, authentic clinical experiences and the support of supervisors are essential for developing SDM competences during workplace learning.

The residents reported that developing SDM proficiency requires a longitudinal learning process. This implies a need for continuous attention to and opportunities for a repeated learning process during postgraduate medical education.<sup>39, 41</sup> The usual training interventions for SDM focus on acquiring knowledge and skills in stand-alone educational sessions, isolated from the workplace. Since longitudinal workplace learning seems to be essential for developing SDM proficiency, this might explain why most interventions are limited in their effectiveness.<sup>9-11, 22</sup>

To engage in learning SDM, awareness and motivation seems to be essential.<sup>25, 26</sup> Residents doubted on whether SDM was appropriate in every consultation and reported several patient and situation related barriers. We believe residents' awareness of the need for SDM, personal barriers and incompetence needs focus to foster intrinsic motivation to learn SDM. Confrontation with SDM knowledge and skills and reflection on clinical performance, experiences and barriers for SDM might be helpful.

### **Strengths and limitations**

This study has strengths and limitations. First, we used video-stimulated interviews to obtain in-depth reflections on residents' clinical experiences. Using observations from recent exemplary consultations selected by the residents themselves helped us stay close to each resident's learning experiences.<sup>29, 52</sup> To quote Barton (2015): *'giving participants greater control can also yield data that more authentically reflect their conceptual categories'*.<sup>52</sup> However, a potential risk of this method is that participants feel vulnerable and change their behaviour. We tried to limit this risk by sitting out of sight and not interacting with the participants while observing.<sup>53</sup> The researchers had less clinical experience than the residents and were not involved in their GP training programme. It was also emphasised that participants were not being assessed.<sup>28, 29</sup> Furthermore, some interviews were conducted days after the consultations. We did not observe differences in the extent of reflection, but do not know if the content of the reflection differs for interviews that took place immediately versus up to three weeks after the consultations. Finally, although the used consultations represented a variety of patients, only few patients of low educational levels and no patients over 80 were included. However, all residents reflected on the effects of patients' age, intelligence, language skills, socioeconomic status and culture on SDM.

Second, to maximise the trustworthiness of our findings, we engaged multiple researchers from different backgrounds in the data analysis and interpretation process.<sup>54</sup> We also collected and analysed data iteratively until we reached saturation and a rich understanding of the themes.

Third, the setting in which this study was conducted might have influenced the results. General practice is characterised by generalist care, including a wide range of medical decisions and diagnostic and treatment options. Residents in specialist settings might therefore not feel a comparable need to acquire medical knowledge. Furthermore, residents might have expressed larger engagement with learning SDM compared to residents in other specialties, since SDM is part of GPs' core values. Moreover, in this postgraduate medical education setting there is a strong connection between workplace learning and formal training, and long-term relationships between faculty, clinical supervisors and residents, which might not be the case in different postgraduate programmes. It would be interesting to explore whether residents in other settings recognise the educational needs.

Finally, the sample consisted of first- and third-year residents. Although first-year residents might experience a higher degree of insecurity, which might have influenced their needs for learning SDM, no differences in educational needs and challenges faced in workplace learning were found. While 30% of GP residents are male, only 2 of the 17 participating residents were male.<sup>55</sup> Since female clinicians are more likely to engage in patient-centred communication, this might have influenced self-evaluations of SDM performance.<sup>56-58</sup> We acknowledge that not using purposive sampling may have caused selection bias, since residents with a positive attitude and motivation to improve their SDM skills might have been more likely to participate. However, residents with a more doctor-centred attitude might have volunteered, which could diminish the likelihood of selection bias.

## **Conclusion**

Residents expressed the need for continuous attention for SDM during postgraduate medical education. This would allow them to engage in two parallel learning processes: acquiring knowledge and skills needed for SDM, and practising SDM in the clinical workplace. It is essential that stakeholders involved in residency training align the educational curriculum, workplace learning and learning activities to operationalise residents' attitude, knowledge and skills for performing SDM in clinical practice.

## **Practice implications**

The educational needs for SDM residents expressed contain ingredients for supporting SDM proficiency. Didactic components were outlined based on these educational needs (Table 5). Our findings suggest that clinical supervisors need parallel training to enable supporting residents' development in becoming proficient in SDM. Residents' training should stimulate engagement in learning activities that meet residents' personal educational needs for SDM.

This study focused on understanding residents' perceptions of their educational needs, since we consider this a precondition for effective learning. However, we realise that this reflects a limited perspective on learning SDM given its complexity in clinical practice. Therefore, further applied research should focus on integrating these educational needs with theoretical perspectives and perspectives of faculty and clinical supervisors.

**Table 5.** Overview of the identified didactic components for learning SDM during postgraduate medical education, transposed in the triangle of educational curriculum, workplace learning and learning activities

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**Educational curriculum (faculty)**

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***Increase the resident's awareness of the need to learn SDM***

- Prioritise SDM in the educational curriculum
  - Pay continuous attention to SDM during specialty training
  - Integrate SDM into existing educational programmes (e.g. medical, EBM and communication training; collaborative reflection; clinical case discussions)
  - Communicate the importance of SDM
  - Set a good example of SDM
  - Reflect on the resident's personal beliefs about SDM
  - Confront the resident with their own SDM performance in video recordings
- 

***Give the resident theoretical knowledge about SDM***

- Integrate the phases of SDM in training
  - Integrate knowledge on the benefits of SDM in training
- 

***Give the resident knowledge about potential clinical situations for SDM and corresponding diagnostic and treatment options***

- Integrate potential situations and options into medical and EBM training and clinical case discussions
- 

***Give the resident communication skills to use in SDM***

- Provide feedforward feedback on SDM performance in video recordings of the resident and peers during communication training (especially challenging situations and randomly selected consultations)
  - Observe video recordings of peers or SDM experts applying SDM
  - Provide example narratives with sentences the resident can apply in SDM
  - Roleplay with peers or simulated patients
  - Discuss challenging situations in peer groups
  - Give examples of how to apply SDM in challenging situations
- 

**Workplace learning (clinical supervisor)**

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***Increase the resident's awareness of the need to learn SDM***

- Devote continuous attention to SDM in the clinical workplace
  - Communicate the importance of SDM
  - Set a good example of SDM use
  - Let the resident observe the supervisor applying SDM
  - Confront the resident with their own SDM performance in video recordings
-

**Table 5.** Continued

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***Provide a constructive learning environment***

- Provide a safe learning environment
- Provide authentic learning experiences and opportunities to practise new knowledge and skills

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***Expand the resident's knowledge about potential clinical situations for SDM and corresponding diagnostic and treatment options***

- Provide options when discussing clinical cases
- Encourage the resident to think of alternative options when discussing clinical cases
- Discuss potential clinical situations in which SDM can be used
- Discuss options and evidence included in clinical guidelines

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***Encourage reflection on SDM performance***

- Support the resident in becoming aware of their personal beliefs about SDM
- Support reflection on the resident's SDM performance observed in live or video observations

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***Provide feedback about SDM performance***

- Provide feedforward feedback about SDM performance based on live or video observations of the resident

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***Provide concrete examples and alternative behaviour for SDM***

- Let residents observe the supervisor applying SDM
- Provide examples about how to apply SDM during clinical case discussions or observations of the resident
- Provide example narratives with illustrative sentences the resident can apply to SDM during discussions of clinical cases or observations of the resident

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***Learning activities (resident)***

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***Engage with the educational curriculum and workplace learning of SDM***

- Identify potential learning experiences
- Formulate personal learning goals
- Practise SDM knowledge and skills repeatedly
- Identify diagnostic and treatment options
- Evaluate and monitor learning plan and activities
- Assess your own SDM performance by watching video-recorded consultations

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Abbreviations: SDM, shared decision making; EBM, evidence-based medicine.

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## **Appendix A**

Definition of 'educational need' in this study on shared decision making of residents in the specialty of General Practice

Definition of 'educational need' as a twofold concept.

(1) Sub-competences (attitudes, knowledge, skills) SDM residents feel they need to improve or give attention to during GP training, based on their experiences in clinical practice.

(2) Residents' views on how these aspects should be learned, in other words: conditions for fostering learning, or the educational support they need to be able to learn SDM.

Abbreviation: SDM, shared decision making; GP, general practice

## Appendix B

Interview guide used for video-stimulated interviews with residents in the specialty of general practice to gain insight into educational needs for shared decision making

- Introduction\*: ‘Thank you for participating in this interview’
- Requesting consent for an audio recording: ‘I would like to ask your permission to audio record the interview. Do you agree to this?’
- Interview procedure: *‘The interview will take 45-60 minutes. We will watch and discuss one or two of your video-recorded consultations. I would like to ask you to pause the video when you feel you used SDM or should have used SDM, and reflect on what you did. You can pause the video by pressing the spacebar. After you have finished your answer, I might ask some additional questions. When I see something interesting or notable, I will pause the video and ask questions about the fragment. Is this clear to you?’*
- Selection of consultation: *‘Which consultation would you like to discuss?’*

The researcher looks up the resident’s questionnaire regarding this consultation.

*‘In this consultation, a (fe)male patient of <x> years old visited you because <x>. Before we watch the video, I would like to know:*

- *What was your medical goal during this consultation?*
  - *What contextual factors played a part in this consultation?*
  - *In the questionnaire, your SDM relevance score for this consultation was <x>. Could you explain this score?*
  - *How would you evaluate SDM in this consultation?’*
- Video-recorded consultations: *‘We will now watch the video’*

When pausing the video, say the time of pausing out loud.

Pay attention to the patient’s preferences, goals and values when watching the video.

When the video is paused and the resident has stopped talking, or when you pause the video, ask open-ended questions (how, what, why, when), such as:

- Can you explain what you are doing in this fragment? Why are you doing this in this way?
- What is happening in this fragment?
- Could you tell me more about this?

- What are you trying to achieve at this moment?
- What did you intend with this behaviour?
- Why did you choose to do it in this manner?
- What resulted from this behaviour, in your opinion?
- What do you mean exactly?
- Did you face barriers/difficulties?
- What would have helped you in applying SDM?
- What would you need to be able to do this (even) better?
- How did you learn this?
- What would you need to learn this?
- What influence did your supervisor / training on formal training days have on learning this? How can this be improved?

\* Please note that the researcher and resident had already met since the researcher was present in general practice during a morning or afternoon clinic. Before the researcher began video recording the consultations during this clinic, the researcher introduced him/herself, and repeated important elements of the information letter (e.g. the purpose and procedure of the study, the voluntary basis of participation and guaranteed anonymity).

## Appendix C

### Characteristics of the consultations selected for the video-stimulated interviews

The 17 consultations used for the video-stimulated interviews represent a broad variety of patients and reasons for encounter (Table). All selected consultations were non-urgent, and the mean consultation time was 15 minutes. Seven patients had visited the resident before, six of whom had done so for the same complaint. In all consultations, both the resident and patient scored SDM as relevant (score 4-6 on a 6-point scale).

**Table.** Characteristics of the consultations selected for the video-stimulated interviews

Patient	Sex (male/ female)	Age (years)	Educational level	Reason for encounter	Relevance of SDM <sup>a</sup>		Duration of consultation (minutes)
					Known/ unknown patient	Initial/ follow-up consultation	
1	f	25	master	breakthrough bleeding on contraception	4	5	5
2	m	72	primary education	cough	4	5	13
3	m	50	lower secondary education	rectal bleeding	5	6	27
4	f	1	bachelor	earache (child with mother)	5	4	10
5	m	74	bachelor	shoulder pain	5	6	22
6	m	44	bachelor	panic attack	6	6	19
7	f	75	technical/vocational	sore throat	4	6	16
8	m	8	primary education	asthma (child with father)	5	6	9
9	f	78	technical/vocational	tailbone pain	4	4	19
10	m	48	bachelor	insomnia	5	5	19
11	f	20	higher secondary education	eczema	4	5	9
12	f	52	technical/vocational	abdominal pain	4	6	23
13	f	73	lower secondary education	flank pain	4	5	16
14	f	32	bachelor	psoriasis	5	6	7
15	m	30	technical/vocational	cough	5	5	11
16	m	27	technical/vocational	earache	4	6	18
17	f	50	bachelor	erysipelas	6	5	16

Abbreviation: SDM, shared decision making.

<sup>a</sup> Score on a 6-point scale (completely disagree – completely agree). The resident and patient scored the relevance of an SDM process in the consultation. Residents answered the question: ‘how relevant did you rate SDM in this consultation’. Patients answered the question ‘for me it is important to be involved in the decision made in this consultation’.





CHAPTER 5

Designing longitudinal  
shared decision-making training

EMBARGOED

Anouk Baghus, Esther Giroldi, Chris Rietmeijer, Geurt Essers, Arwen Pieterse, Nette Blankenstein, Jean Muris, Trudy van der Weijden, Angelique Timmerman. Designing longitudinal training for shared decision making in postgraduate medical education: using an educational design research approach. Submitted.



CHAPTER 6

Workplace learning of  
shared decision making

EMBARGOED

Anouk Baghus, Esther Giroldi, Naomi Ploum, Arwen Pieterse, Geurt Essers, Nettie Blankenstein, Jean Muris, Trudy van der Weijden, Angelique Timmerman. How does a longitudinal and integrated shared decision-making training programme foster clinical workplace learning? Submitted.



Shared decision making (SDM) is widely recognised as the preferred approach to involve patients in medical decisions. Despite numerous educational interventions focused on implementing SDM, actual patient involvement in decision-making in daily clinical practice remains limited. This may reflect the complexity of transferring the SDM knowledge and skills acquired in training into performance in clinical practice. This complexity necessitates a continuous process of applied learning of SDM in the clinical workplace, for which postgraduate medical education is considered a suitable period. However, it is yet unknown how educational interventions targeting SDM can effectively stimulate the transfer learning to actual clinical performance.

This dissertation aimed to develop a longitudinal SDM training programme, integrated into workplace learning of postgraduate medical education, aligned with the educational needs of stakeholders. The Dutch general practice specialty training was chosen as a study setting due to the relevance of SDM for the profession and the potential supportive clinical learning environment. The studies in this dissertation addressed the following research questions:

1. What entrustable professional activities (EPAs) for SDM need to be learned during postgraduate medical education to perform adequate SDM in clinical practice?
2. What is the current SDM performance level of residents?
3. What are residents' educational needs for workplace learning of SDM?
4. How to design an evidence-informed SDM training programme for postgraduate medical education?
5. How does a longitudinal SDM training programme contribute to experienced learning and application of SDM by residents and their supervisors in the workplace?

These insights were needed to design an evidence-informed SDM training programme that allows residents to develop their SDM performance in the clinical workplace and to explore how this training programme may support clinical workplace learning of SDM. In this chapter, the main findings of this dissertation are summarised and discussed, followed by a reflection on the methodological strengths and limitations, as well as practical implications that follow from this research. This chapter closes with directions for future research, a general conclusion and a personal reflection.

## Main findings of this dissertation

In **Chapter 2**, a Delphi consensus study is described in which EPAs and behavioural indicators for learning SDM during postgraduate medical education were developed. A multidisciplinary panel of Dutch experts in SDM research, education and clinical practice reached consensus on four EPAs:

1. The resident discusses the desirability of SDM with the patient
2. The resident discusses the options for management with the patient
3. The resident explores the patient's preferences and deliberations
4. The resident takes a well-argued decision together with the patient

These EPAs are intended to make explicit what residents need to learn to be able to perform adequate SDM in clinical practice. Additionally, consensus was reached on 18 behavioural indicators which provide guidelines for performing the EPAs in clinical practice. No consensus was reached on the behavioural indicator 'the resident introduces own preferences where indicated' as this was believed to influence the patient too much in stating their personal preferences.

In **Chapter 3**, the evaluation of SDM performance of first- and third-year residents from an observer, resident and patient perspective is described. In this quantitative descriptive study, the validated OPTION<sup>5</sup> instrument was used to assess observed SDM performance in recorded consultations. In addition, residents completed the SDM-Q-Doc questionnaire and patients completed the SDM-Q-9 questionnaire to assess their perceptions of SDM performance in these consultations. The scale of all three instruments ranges from 0 (no SDM performance or experience) to 100 (optimal SDM performance or experience). The residents' observed mean SDM performance was 19.1 (SD = 10.9), mean resident self-reported SDM performance was 56.9 (SD = 18.5), and mean patient reported SDM performance was 73.3 (SD = 26.8). The observed SDM performance was significantly higher in the subgroup of consultations for which residents perceived SDM being relevant and in longer consultations.

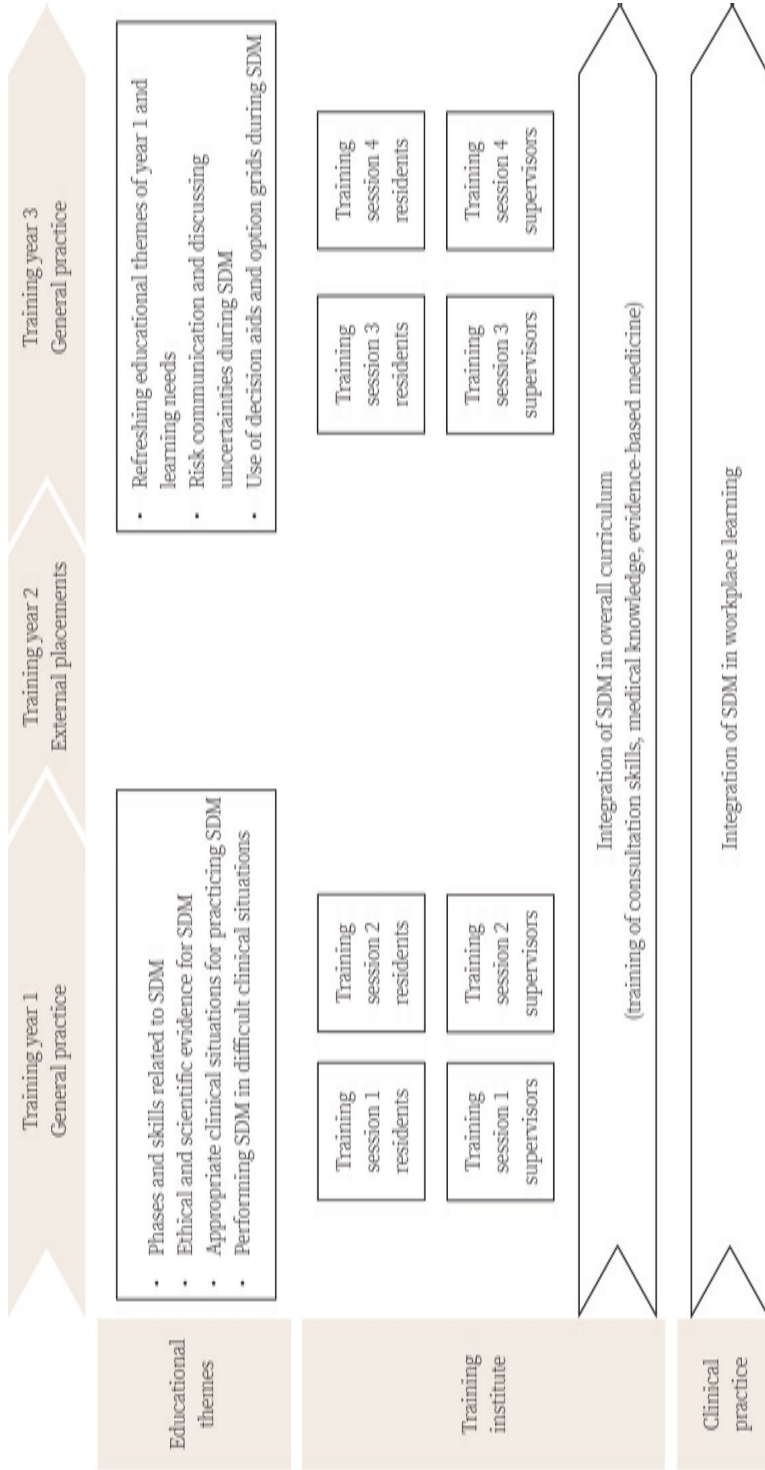
**Chapter 4** describes residents' educational needs for workplace learning regarding SDM resulting from video-stimulated interviews. Video recordings of consultations between residents and their patients were observed and used to reflect on their learning experiences. Four educational needs were identified: 1) acquiring knowledge and skills needed to perform SDM (including knowledge about the SDM process and diagnostic and treatment options, and skills for communication and challenging situations); 2) practising SDM; 3) reflection and feedback on SDM performance; and 4) longitudinal and integrated training of SDM. During the learning process of SDM, raising awareness and

motivation for performing SDM seemed essential. Residents reported specific attitudes which influence learning of SDM, such as their own preferences regarding the options and patient and decision characteristics and mentioned the influence of (implicit) patient feedback, clinical role models and the training institute.

The design, implementation and evaluation of an SDM training programme is outlined in **Chapter 5**. This study resulted in a description of the iterative process of educational design, in which teachers, residents and supervisors were involved, and a flexible blueprint for an SDM training programme (Figure 1). The evaluation identified six themes: 1) stakeholder perspectives on SDM; 2) learning experiences during the training programme; 3) experiences with the blueprint of the training programme; 4) stakeholder educational needs; 5) transfer of training to clinical practice; and 6) experienced effect on competence development. Overall, SDM was considered an important educational theme, with the training programme raising awareness of the importance of learning SDM and increasing supervisors' awareness of their role as SDM role models. While the training programme was found supportive for workplace learning of SDM, challenges were revealed, including integrating SDM as a topic into the overall curriculum, competing themes in workplace learning and stakeholder perceptions such as doctors should offer advice, SDM is only possible with comparable options, and the doctor knows what is best for the patient. This study eventually resulted in seven procedural educational design principles describing how educational interventions for learning of complex competences, such as SDM, could be constructed and four substantive educational design principles describing how the learning content for SDM could be formulated.

Finally, in **Chapter 6**, the experienced contribution of the developed SDM training programme to workplace learning is described. Results from focus groups, questionnaires, interviews, and observations and debriefings of training sessions were triangulated to gain insight into the experiences of residents, supervisors and teachers with regard to how the training programme fosters workplace learning of SDM. This study suggested that the training programme stimulates residents and supervisors to practise SDM in clinical workplace learning. Insight was provided into what workplace learning activities support learning of SDM for residents and clinical supervisors, being practising during consultations, reflection during learning conversations and performing (bidirectional) observations. However, not all residents and supervisors engaged in these workplace learning activities for SDM. We identified factors affecting workplace learning, including perceptions regarding the desired decisional role – shaped by personal attitudes and clinical experiences –, preconditions for practising SDM (i.e. time, cognitive space, medical knowledge and expertise, and supportive tools) and didactic skills of supervisors to coach SDM (i.e. integrating SDM into the learning agenda and supervisors' role modelling and coaching).

**Figure 1.** Global overview of the blueprint of the developed shared decision-making training programme for general practice specialty training including educational themes and activities at the training institute and in clinical practice



Abbreviation: SDM, shared decision making

## Navigating the educational design research process

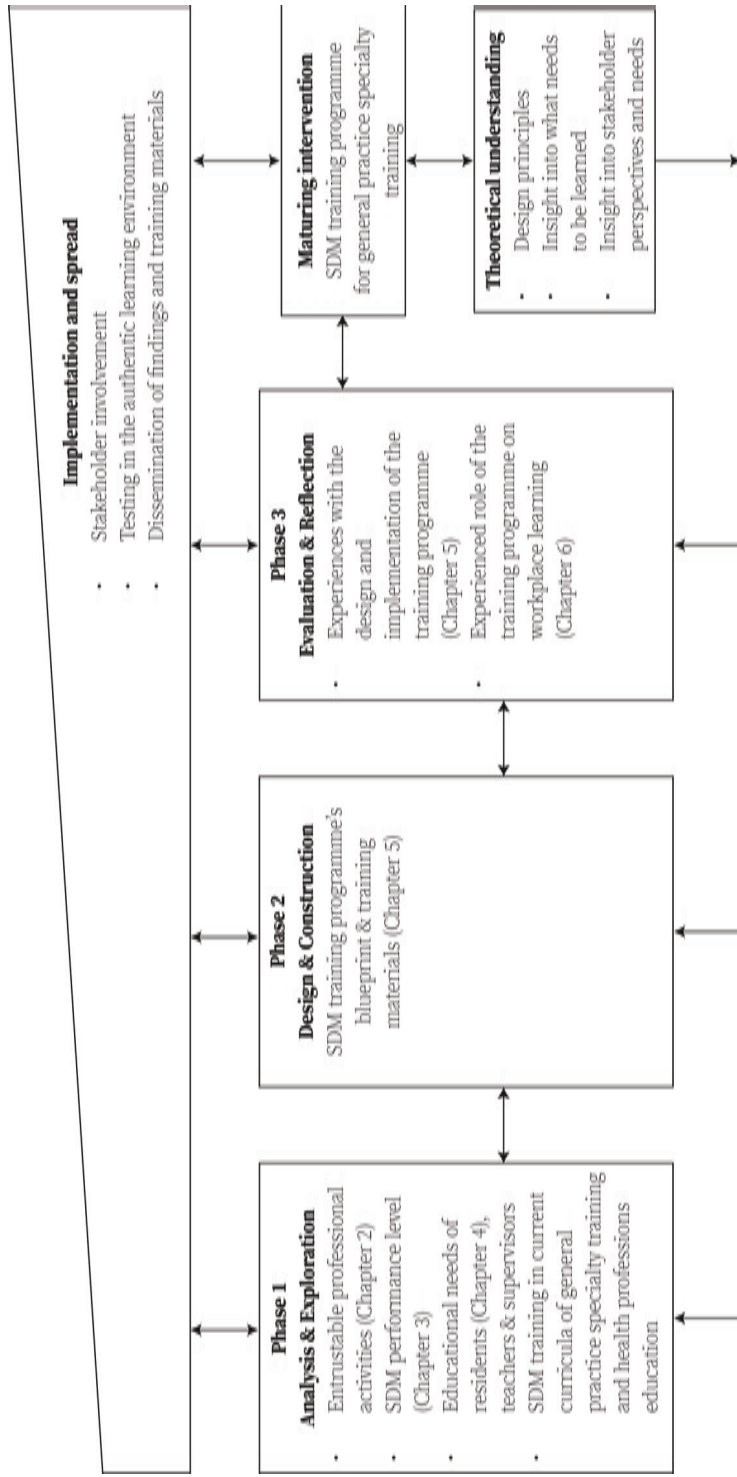
This dissertation describes the development of an SDM training programme using an educational design research (EDR) approach. As explained in more detail in **Chapter 1**, EDR consists of three core phases: 1) analysis and exploration; 2) design and construction; and 3) evaluation and reflection.<sup>1-3</sup> The execution of these phases eventually resulted in a maturing educational intervention targeting SDM and theoretical understanding that underpins its' design. Throughout this entire process, the continuous interaction with practice is represented by the activities headed under implementation and spread.<sup>4</sup> We contextualised the generic model of EDR created by McKenney and Reeves,<sup>1,4</sup> presented in **Chapter 1**, to provide an overview of the executed EDR process for designing an SDM training programme in Figure 2 and discuss this process further below.

### Core phases of educational design research

The execution of the three phases in the EDR process is described in several chapters of this dissertation: analysis and exploration in **Chapters 2 – 4**, design and construction in **Chapter 5**, and evaluation and reflection in **Chapters 5 and 6**. In EDR, it is essential to ensure that the educational challenge being addressed is considered legitimate from both theoretical and practical perspectives before the intervention is designed and tested.<sup>4</sup> Therefore, we conducted an extensive analysis and exploration phase to gain in-depth understanding of the challenges related to learning SDM in postgraduate medical education, as outlined in this dissertation. During this phase, we not only explored the educational needs of residents (**Chapter 4**), but also interviewed teachers and supervisors to explore their educational needs. Additionally, we combined interviews with curriculum coordinators and a document analysis to gain insight into the integration of SDM in current curricula of general practice specialty training and conducted a literature review on current SDM training in health professions education. The information from these data sources informed the design and construction in **Chapter 5**.

The analysis and exploration phase was followed by design, implementation and evaluation of the training programme. In **Chapter 5**, the iterative process that is characteristic for EDR becomes noticeable, as the designed training programme was repeatedly evaluated and redesigned. For example, after exploring teachers' design needs during work sessions, we reflected on them in the light of the residents' educational needs identified in phase 1 during researcher meetings. We then constructed components of the training programme and discussed these with the teachers, who provided input for further design.

**Figure 2.** Overview of EDR phases for the development of an SDM training programme for postgraduate medical education, based on McKenney and Reeves (2021)<sup>1,4</sup>



Abbreviations: EDR, educational design research; SDM, shared decision making;



In most studies that evaluate the outcomes of educational interventions targeting SDM, the focus is on assessing SDM behaviour after training.<sup>5</sup> We, however, focused on both process and product outcomes to further contribute to theoretical understanding and a maturing intervention.<sup>1,2,4,6</sup> Evaluating the implementation of the training programme, its content, didactic format and learning atmosphere, along with its effects on SDM knowledge, skills and attitudes, and remaining educational needs, contributed to understanding whether, how and why the designed SDM training programme intervention works for learning SDM in the workplace.

As a result of this thorough design process, this EDR study spanned several years, which is comparable with the duration of EDR studies in general.<sup>4</sup>

### **Theoretical understanding and maturing intervention**

EDR aims to simultaneously develop both theoretical insights and practical solutions,<sup>1,4</sup> which is illustrated in Figure 2 as ‘theoretical understanding’ and ‘maturing intervention’. In the literature, the *theoretical insights* are generally formulated in design principles to structure educational interventions.<sup>1,4</sup> Therefore, the EDR study presented in this dissertation also aimed to establish educational design principles, which are described in **Chapter 5**. These design principles might be considered the primary theoretical output from this EDR process, as these integrated the findings from all individual studies in the context of the analysis and exploration phase. We believe therefore, that the scientific output of the individual studies already contributed to theory as these describe educational objectives and content of learning (**Chapter 2**) and provide insight into actual learning of SDM and educational needs (**Chapters 3 – 6**). In the literature, various types of *practical solutions* resulting from EDR are described, including educational products, processes, programmes or policies.<sup>1,4</sup> This EDR study resulted in an SDM training programme for Dutch general practice specialty training, completed with detailed training materials. By addressing both theoretical and practical aims, we believe that this EDR study has created valuable new insights into designing educational interventions for learning SDM during workplace learning in postgraduate medical education.

### **Implementation and spread of the educational intervention**

Finally, in Figure 2, attention to educational practice is represented by ‘implementation and spread’. This is explained in the EDR literature as increased interaction with educational practice during the EDR process by close collaboration with directly involved stakeholders and testing in the authentic learning environment. Thereby, the process is influenced based on what actually happens in educational practice.<sup>1,4</sup> In our study, stakeholders were involved from the start and their experiences from both educational and clinical practice influenced the development of the SDM training

programme. Eventually, the training programme was aligned with clinical practice, in providing the knowledge and skills to apply SDM during workplace learning. These actions meet the aim of implementation and spread, which is particularly relevant as this collaboration with stakeholders is believed to help to bridge the gap between research and practice. When educational interventions are developed solely by researchers or policymakers, they are often only minimally aligned or practical, and educational interventions developed by practitioners tend to make limited use of theoretical knowledge.<sup>4</sup> Nevertheless, our implementation strategies went beyond stakeholder involvement and testing in the authentic learning environment, as they included activities to disseminate our findings and the designed training materials. In **Chapter 8**, we describe some of our implementation strategies in further detail.

We do realise, however, that educational interventions mainly target individuals, while well-known strategies from implementation science, such as the Consolidated Framework for Implementation Research (CFIR), also emphasise the importance of focusing on the outer setting (e.g. policies and sociocultural values) and the inner setting (e.g. organisational culture and structure of the healthcare setting and training institute) to achieve sustainable implementation.<sup>7-9</sup> The findings of the studies in this dissertation provide direction to these settings by highlighting the importance of aligning formal training and workplace learning in postgraduate medical education, fostering a supportive learning environment in the clinical workplace, including SDM in clinical guidelines, ensuring the availability of decision aids and option grids and allowing sufficient time to integrate SDM into consultations.

Overall, the EDR process has been profoundly covered in this dissertation. Can we consequently conclude that the developed training programme supports residents' learning of SDM?

## **Climbing the pyramid**

The ultimate aim of this dissertation is supporting residents to learn to actively involve their patients in decision-making in daily clinical practice. To achieve this, we explored how to bridge the transfer gap between acquiring SDM knowledge and skills in training and subsequently translating these into performance in clinical practice. Using Miller's terminology, we focused on moving from 'knows' and 'knows how' to 'does'.<sup>10</sup> Miller's pyramid describes the levels of mastering clinical competence. Originally, the pyramid consists of four levels. At its base, the 'knows' level reflects that the learner has the knowledge that is required to carry out the clinical behaviour. At the second level, 'knows how', the learner understands how to apply this knowledge and has developed

the necessary skills for clinical performance. The third level, 'shows how', involves the learner demonstrating the ability to integrate this knowledge and skills into practice in a controlled environment, for example while being observed and supervised. At the top of the pyramid, the level 'does' reflects that the learner consistently performs the competence independently in authentic clinical situations.

### **The role of professional identity formation in learning shared decision making**

Miller's pyramid has been amended with a proposed fifth level 'is', with the growing understanding of the importance of professional identity formation in medical education. This level describes the incorporation of the clinical competence into the learner's professional identity (Figure 3).<sup>11</sup> This means that in this level, expected attitudes, values and behaviours are consistently demonstrated in clinical performance.

**Figure 3.** The amended version of Miller's pyramid<sup>10,11</sup>



Professional identity refers to who the person is and wants to become in relation to their professional role.<sup>12</sup> Professional identity formation is the process through which values, beliefs and behaviours that are expected in a healthcare professional's community are progressively integrated, leading one to 'think, act and feel' like a healthcare professional within their specific profession.<sup>12,13</sup> This is a long-term process, as identity continues to evolve over the years being and working as a healthcare professional.<sup>14-16</sup> Postgraduate medical education is an important period for the formation of professional identity, as residents actively participate in the community of practice through clinical workplace learning.<sup>12,13</sup>

In **Chapter 1**, we explained that SDM is a complex task for clinicians and providing training on only knowledge and skills is insufficient. We argued that clinicians

need positive attitudes and beliefs toward SDM to incorporate it into their clinical performance. Throughout this research process, we realised that how clinicians perceive their own professional role and the role of their patients in clinical practice is part of their professional identity. As these perceptions are integral to how they approach their patients, a patient-centred attitude and the belief that it is important to involve patients in making decisions that best suits patients' values and preferences is essential for clinicians' intrinsic motivation to learn and apply SDM. Therefore, fostering the integration of SDM into the professional identity of clinicians might be required to achieve actual change. The importance of professional identity formation for the development of SDM has only recently been recognised in the literature.<sup>17-20</sup>

In the following paragraphs, we will reflect on the role of professional identity formation in residents' learning of SDM. For this reflection, we draw on Biesta's three domains of educational purpose: qualification, socialisation and subjectification,<sup>21, 22</sup> which are closely related to professional identity formation. These domains describe the multiple roles that education plays in professional development and emphasise that it involves not only the acquisition of competence but also the professional identity formation of individuals. *Qualification* refers to the acquisition of knowledge, skills and understanding that is needed to qualify for the profession. *Socialisation* involves introducing learners to the existing professional, social and cultural norms, values and ethical standards of the profession. Finally, *subjectification* is about discovering how the learner can be authentic within their profession and integrate their own values, beliefs and experiences with the responsibilities of their role.

### **Qualification: building the knowledge and skills for effective shared decision making**

The qualification domain focuses on ensuring that residents acquire sufficient competence to effectively integrate SDM in clinical practice. In **Chapter 1**, we introduced the complexity of this competence, as SDM requires the integration of sufficient medical knowledge and experience, skills to interpret clinical guidelines and evidence and strong communication and collaboration skills to engage patients in the decision-making process. The results from **Chapter 4** indicated that two parallel learning processes are important in residents' development of qualification for SDM: 1) acquiring the practical knowledge and skills needed to perform SDM in clinical practice, which can start during formal education, and 2) a repeated process of practising, feedback and reflection in the workplace.

To support the first process, we aimed to make explicit what residents need to learn to be able to perform adequate SDM in clinical practice by formulating EPAs in **Chapter 2**. The EPAs are further detailed in underlying behavioural indicators which describe

the sub-tasks of performing the process of SDM (**Chapter 2**) and example narratives to provide guidance for performing the EPAs in clinical practice. As SDM requires the integration of knowledge and skills from multiple competence domains,<sup>23</sup> we not only aimed to include specific SDM training sessions in the developed training programme, but also for integrating SDM into the content of the overall curriculum, for example in training of consultation skills, medical knowledge, evidence-based medicine (see Figure 1). However, **Chapter 5** described that teachers faced difficulties to identify opportunities for integrating SDM into the overall curriculum. We consider that teachers need to possess sufficient knowledge and skills in SDM to be able to flexibly align their expertise with the needs of learners. This requires that teachers also go through a learning process to develop SDM competence.

We consider the second parallel learning process essential for reaching the ‘does’ level. The repeated practice, feedback and reflection in the workplace is also known as deliberate practice,<sup>24</sup> and is also found to be important in developing doctor-patient communication skills.<sup>25-27</sup> It has been suggested that effective communication requires learning how to tailor communication to the context of the consultation.<sup>28,29</sup> Recently, two processes were identified as necessary for adaptive expertise in communication: 1) being sensitive and adapting communication to the needs of the patient, and 2) monitoring communication performance in terms of self-awareness and reflective capacity.<sup>30</sup> This finding also highlights the importance of repeated practice and reflection on performance to adapt communication to both patients’ and clinical needs. We consider that SDM performance, of which communication is a core skill, also requires an adaptive approach. The EPAs formulated in **Chapter 2** describe the process or phases of SDM, which can be spread over multiple consultations and need tailoring to the clinical context. The metaphor of a DJ’s mixing console can be used to illustrate this process:<sup>31</sup> the slider of each EPA or phase is opened more when the patient is willing and able to participate in decision-making, when the clinical situation allows it and when multiple options are available. Therefore, the same processes needed for gaining communication expertise might also be applicable to SDM. To monitor the development of competence for SDM, residents could regularly reflect – either independently or together with their supervisors or teachers – on which knowledge or skills can be further developed for effective SDM and which learning strategies would be helpful. Clinical experiences provide a valuable starting point for this reflection.

In **Chapter 4**, residents described that supervisors are an important example in how to apply SDM during consultations. This finding is in line with the results from a study in hospital specialty training, which found that residents learn SDM through observing and copying others’ behaviour.<sup>32</sup> However, as observed SDM performance of experienced general practitioners in previous studies<sup>33-35</sup> is only slightly higher

compared to residents' performance in **Chapter 3**, it is possible that supervisors do not demonstrate an example of adequate SDM performance. Reflections from supervisors during the training programme in **Chapter 5** indeed revealed that they are usually quite directive in their decision-making approach and apply the phases of SDM inconsistently. Although supervisors reported that it is difficult to change their behaviour, we consider that admitting this difficulty and showing the willingness to learn also serves as positive role modelling, as residents mentioned that supervisors also raise awareness by emphasising the importance of SDM (**Chapter 4**). This is also relevant for developing an understanding of the norms of the profession within Biesta's domain of socialisation. Mutual learning of SDM between residents and supervisors might be valuable to solve the tension that arises from supervisors expected to be role models while not yet demonstrating the desired performance themselves. During this process, supervisors not only guide their resident but can also gain SDM expertise themselves. The results from **Chapter 6** showed that both residents and supervisors can learn from learning conversations and practice of and reflection on SDM during bidirectional observations of consultations. This has also been indicated useful as a learning approach in studies focusing on technical skills and evidence-based medicine.<sup>36-38</sup> However, these studies also posed challenges to bidirectional learning as learning opportunities are not always optimally recognised and used. Although understanding the bidirectional learning of SDM would be valuable for gaining insight into mutual learning processes of residents and supervisors, no research on this topic has been done yet.

### **Socialisation: understanding the importance of shared decision making for the clinical profession**

The socialisation domain focuses on conveying the significance of SDM for the profession. In the Netherlands, SDM is broadly promoted by the Ministry of Health, patient bodies and healthcare professional societies.<sup>39</sup> As described in **Chapter 1**, the context of general practice in which our studies were conducted is characterised by a focus on patient-centred care, one of the core values of the profession.<sup>40, 41</sup> In 2019, 'making decisions together with patients' was added to the description of this core value.<sup>42</sup> This core value was included in the competence profile of general practitioners, which is supported by both the scientific and professional associations, as well as by general practice specialty training and residents' representatives.<sup>43</sup> Additionally, the scientific organisation seeks to emphasise the significance of SDM by including it into their recommendations in clinical guidelines and by developing decision aids, option grids and an e-learning.<sup>44-46</sup> This suggests that general practice residents are exposed to the propagated significance of SDM for the profession. However, residents primarily learn about the norms and values of the profession through interactions within their community of practice, particularly in the clinical workplace.<sup>16, 47</sup> This raises the question whether general practitioners in the field also embrace SDM. While supervisors

in **Chapter 5** overall considered SDM important for clinical practice, some expressed views that doctors should offer advice and that patients expect paternalism. Our study did not further investigate supervisors' attitudes, but a recent sample survey among 157 healthcare professionals in general practice showed that 30% did not agree that their own opinion and the patients' opinion weigh equally in most conversations in which a decision about healthcare or support has to be made, and 23% agreed that their own opinion outweighs the patient's opinion.<sup>48</sup> This suggests that there is a tension between what policymakers and society advocate and how general practitioners experience the relevance of SDM in daily clinical practice. In the workplace, supervisors serve as role models for residents, helping them to understand the norms, values and expectations of the profession. Indeed, in **Chapter 4**, residents described that supervisors who involve patients in decision-making and emphasise its importance make them aware of the value of SDM. However, residents and supervisors will be confronted with the tension of the relevance versus the practicality of SDM in clinical practice, which could negatively affect their understanding of the importance of SDM. We consider it important for supervisors and residents to initiate an educational dialogue about the perceived norms and core values of the profession and how they relate to what is expected in their clinician community, based on their personal (clinical) experiences. This dialogue can provide residents with valuable insights into the professional norms, values and expectations and how supervisors personally interpret and implement these in practice.

Although the clinical workplace is the most important educational context for this process of professional identity formation, the training institute also serves a significant role by outlining, training and assessing what needs to be learned during postgraduate medical education.<sup>47</sup> Therefore, we also consider reflection and dialogue with peers and teachers during formal training to be important, as they provide another opportunity to explore the norms, values and expectations of the profession. Additionally, including SDM in the educational curriculum of postgraduate medical education underscores its significance for the future profession,<sup>47</sup> which was also described in **Chapter 4**.

### **Subjectification: fostering agency in applying shared decision making**

In the subjectification domain, residents explore how they relate to the required competences (qualification) and the demands of the profession (socialisation).<sup>21</sup> They also have to decide on when and how to apply SDM in reflection on their own professional values in their practice. The findings from **Chapters 4 – 6** indicated that residents have attitudes that might hinder learning and applying SDM. Interestingly, the residents in these studies strongly felt that SDM is only relevant when they do not have a clear personal preference and when options are comparable in terms of benefits and harms. In contrast, the literature suggests that SDM is relevant when

there are multiple reasonable options, which extends beyond comparable options as this also includes uncertainty about which option may be the best due to lack of evidence or not knowing the patient's preferences.<sup>49</sup> Additionally, the Dutch law on the medical treatment agreement act (WGBO) states that patients must be informed about all possible options, including wait-and-see.<sup>50</sup> **Chapter 4** explained that this attitude, which is exemplified in the residents in our research, mostly resulted from a feeling of responsibility for making the best decision. This finding is in line with the results from recent studies in both primary and secondary care specialty training.<sup>19,20</sup>

It has been proposed that the positivist paradigm in medical education, which emphasises that there is only one truth, has shaped the attitude that clinicians always know what is best for the patient.<sup>19,51,52</sup> This deeply ingrained belief on their professional role and responsibility may have a significant impact on residents' decision-making behaviour. However, we consider that moving away from the belief that there is a single best decision requires a substantial shift towards accepting medical uncertainty. Tolerating uncertainty can be a burden<sup>53</sup> and might be especially challenging for young clinicians who have limited clinical experience, as was pointed out in **Chapters 4 and 5**. This may lead to stricter adherence to clinical guidelines.<sup>54,55</sup> However, residents might fail to acknowledge that recommendations in guidelines often include some level of uncertainty, as 'the best-available evidence' on which these guidelines are based might have limitations, evidence may be lacking, or population-wide data may not be applicable to individual patients.<sup>56</sup> The GRADE approach, used for the development of clinical guidelines, systematically rates the quality of the evidence and the strength of the recommendations, and highlights the need for clinicians to consider the circumstances of the individual patient in decision-making.<sup>57</sup> It is promising that in another study, residents reported that when they gained enough confidence in their medical knowledge and skills, they became able to view patients in their context of the person they are.<sup>16</sup> This is in line with the findings from **Chapter 6**, which showed that cognitive space and medical knowledge and expertise helps them to practise SDM. Additionally, research on managing uncertainty showed that experienced clinicians are more humble about the limits of medical knowledge and that embracing this uncertainty caused them to better understand the uniqueness of the preferences of individual patient.<sup>53</sup>

Also in the subjectification domain, reflection plays a key role in residents' development. It can be helpful to reflect on questions such as: how do I perceive my own role and the patient's role in the decision-making process, and how do I want to approach this? What do patients expect from me, and how do I relate to this? To what extent can I tolerate uncertainty, and do I feel confident deviating from clinical guidelines or professional expectations? Such reflections can be useful for internalising and adapting SDM in ways that align with personal views and style of future medical professionals. This is



emphasised in **Chapters 4 and 6**, which described that applying SDM should feel natural and intrinsic to residents in order to be motivated to perform it.

Clinical experiences and SDM performance can serve as valuable starting points for reflection on learners' personal integration of SDM in clinical practice. In postgraduate medical education, confrontations with real patients in authentic clinical situations in the workplace are considered a powerful trigger for learning communication skills.<sup>25, 26</sup> It has therefore been suggested that involving patients in learning of SDM is important.<sup>32</sup> This importance is underlined in **Chapters 4 and 6**, which described that patient response such as 'you tell me, you are the doctor' and patients who seem satisfied with the resident's current (paternalistic) approach might discourage residents to perform SDM. On the other hand, positive experiences, notably affirmative responses from patients boosted their attempts to practise SDM. Reflection on these authentic clinical experiences with supervisors, teachers and peers was considered essential for learning SDM as described in **Chapters 4 – 6**, and is also recognised in the educational literature as a fundamental activity for integration of acquired competences into the professional identity.<sup>13, 58</sup> In the literature supervisors are considered crucial coaches in the learning process of residents,<sup>59-61</sup> which is confirmed by our findings (**Chapters 4 and 6**). However, coaching residents in learning SDM was found difficult by supervisors in **Chapter 6**. They struggle to guide reflection on SDM as they often lack SDM experience as a clinician. We argue that this might be even more difficult if supervisors prefer a paternalistic approach in decision-making. Training of supervisors might therefore focus on helping them to guide residents' reflection on SDM, challenging residents to move away from the attitude of 'I know what is best for the patient' and encouraging them to find a way to integrate SDM in their clinical repertoire in alignment with their personal views and consultation style.

Additionally, it might be valuable to reflect on the outcomes of consultations and the patient's role in the decision-making process together with the patient, as understanding their experiences can be a strong motivator for improving SDM performance. This reflection can potentially influence the development of a personal vision regarding the role of SDM in clinical practice, while also providing insight into which knowledge and skills need to be further developed (qualification) and how patients perceive the role of SDM in their care (socialisation). As stakeholders did not consider direct patient feedback an educational need in **Chapters 4 and 5**, it has not yet been explicitly addressed in the SDM training programme. A recent study on engaging patients in feedback dialogues with healthcare professionals stated that these can be helpful for learning but also raise challenges such as changing relationships, feelings of vulnerability and perceived power dynamics.<sup>62</sup> Research so far is limited to perspectives on how to engage in feedback dialogues with patients and has not yet reached the stage of implementation

and evaluation in clinical practice. In **Chapter 3**, unilateral patient feedback revealed that patients are already more positive about residents' SDM performance compared to trained observers and residents themselves. These positive patient perceptions are in line with previous studies that used quantitative assessment tools, possibly because patients are unaware that their preferences mattered in decision-making, have low expectations of being involved or hesitate to report negative experiences.<sup>63-66</sup> Qualitative feedback in dialogues might be more valuable compared to unilateral quantitative feedback, as patients have the opportunity to further elaborate on their perspective. It might be interesting to investigate how patients respond in feedback dialogues about SDM and how this influences residents' motivation for learning and practising SDM. Additionally, exploring how supervisors can be involved in these feedback dialogues could be beneficial, as they may benefit as well from hearing patient perspectives to inform their own attitudes.

In conclusion, reflecting on the findings of this dissertation from Biesta's three domains of educational purpose, underpins the importance of professional identity formation for learning SDM. This has already been addressed in the developed SDM training programme, for example by reflecting on challenges in SDM during training sessions, reflecting on clinical experiences and SDM performance during formal training and in the clinical workplace and parallel training of supervisors to improve their SDM performance and didactic skills. However, this might be further improved through using opportunities for bidirectional learning of residents and supervisors, reflection on the norms, values and expectations of the profession in educational dialogue and on how the resident personally wants to implement SDM in their practice and in feedback dialogues with patients to reflect on their experiences with decision-making in the consultation in clinical practice.

## **Methodological considerations**

The main strength of this dissertation is the use of EDR as a methodological framework to design the SDM training programme. This approach ensured that the training programme is informed by both practical and theoretical insights. Additionally, the design process contributed to broader scientific understanding of designing educational interventions for learning SDM during workplace learning in postgraduate medical education and provided a detailed blueprint and training materials for an educational intervention. By conducting an iterative process of the EDR phases, the training programme is based on a thorough context analysis and the design was continuously refined and improved based on reflection and new insights after testing. Furthermore, involvement of residents, supervisors and teachers in this process allowed the training

programme to incorporate their expertise and experiences, which supports (guiding) individual learning in both formal education and in the clinical workplace. Using EDR as a methodological framework also allowed the use of multiple qualitative and quantitative research methods. These mixed research methods helped to better understand the complexity of the educational problem. They complemented and strengthened each other in understanding the target of our research and support the credibility of the research findings.<sup>67</sup> By considering the appropriate method for each research question within the methodological framework of EDR and striving for a solid design and careful execution of the studies, the transferability and dependability of this dissertation were strengthened. Finally, the studies were situated in the learning setting of multiple training institutes of general practice specialty training. This helped to gain a deeper understanding of the local contextual factors and interactions between stakeholders that influence learning and to ensure that the training programme is feasible and relevant for educational practice.

Although using an EDR approach in this dissertation led to novel insights into learning SDM during clinical workplace learning, this methodology may also be considered a limitation. The primary focus on explaining how and why the educational interventions works has led to less emphasis on the extent to which the intervention is effective for SDM competence development. In **Chapters 5 and 6**, the training programme is evaluated using experiences of residents, supervisors and teachers. Hence, the lack of observational data on workplace learning activities and clinical encounters provided a limited perspective on applied workplace learning and SDM performance. We intended to collect residents' video-recorded consultations for evaluation, but they were unwilling to participate. Additionally, patients were hardly involved in the design, implementation and evaluation of the training programme. Patients could have provided a valuable perspective from their needs and experiences on the effectiveness of learning SDM, which might have led to different choices in the design of the training programme. For example, healthcare professions can have perceptions on the patient's preferred role in the decision-making process, which do not align with the patient's preference on their decisional role, such as the patient does not want to be involved or cannot be involved. Gaining insight into actual patient perspectives could have enriched residents' and supervisors' learning experiences during consultations. Another limitation is that the studies in this dissertation – except for the study described in **Chapter 2** – were conducted in only one medical profession of postgraduate medical education. General practice distinguishes itself from other specialties through patient-centred, generalist and continuous care, which we consider an ideal basis for involving patients in decision-making. Also, the context of Dutch general practice specialty training is unique. It involves longitudinal relationships between residents and supervisors, with supervisors who are closely involved in guiding residents' learning and facilitate workplace learning

activities and blend formal small-group education with the same teachers and peers throughout the training year. Other health professions education settings may have different characteristics, such as frequently changing supervisors and teachers and infrequent formal training and observation and evaluation of clinical performance at the workplace. Although the conditions must be taken into account when extrapolating the findings of this dissertation to other educational contexts, we believe that the focus on workplace learning makes the findings transferable to other health professions educational settings. The educational design principles described in **Chapter 5** may be generalisable, as they are generic in nature: the procedural design principles address the workplace learning of complex skills such as SDM, while the substantial design principles describe what needs to be addressed for the content of SDM. Finally, although a longitudinal training programme was designed, it was not implemented and evaluated over the full duration of specialty training. Instead, it ran in separate first- and third-year groups. Implementation and evaluation of the SDM training programme in the regular general practice training would have given more understanding of the alignment of the training programme with the overall curriculum and the needed increasing complexity in learning of SDM over the years.

The findings of the studies in this dissertation were co-constructed through interactions between participants and researchers, in line with the constructivist research paradigm. Our interdisciplinary research team brought together different professional backgrounds, experiences with SDM and educational and research expertise. The research team discussed and reflected on the theoretical backgrounds, methodologies and results of the studies, drawing on their diverse perspectives. This diversity provided depth and richness to the discussions and helped us to be critical of our viewpoints. To complement the expertise of the research team, we consulted a group of experts in SDM and (postgraduate) medical education throughout the project. During our yearly meetings with this advisory board, they reflected on the methodology and the results of the studies, which helped us with further refining our research approach and reflection on and interpretation of the findings.

As a final methodological consideration, reflection on my personal insider perspective as a resident in general practice is relevant. The research conducted in this dissertation might have benefitted from my dual role as both a researcher and a resident. Residents might have been more willing to participate, as they may have trusted that I truly understood the challenges of their learning processes, as well as nuances of clinical practice and workplace learning, and would accurately represent their perspectives. Furthermore, participants might have felt more comfortable sharing their views and experiences with someone who understands their context, which could have led to richer data. Also, my insider perspective could have provided deeper insight into these

views and experiences, as the shared background could have helped me to ask more relevant questions, interpret data more accurately and understand jargon. However, my familiarity with the educational context and my own experiences as a resident could have introduced potential bias, affecting the approach and comprising the objectivity of the data collection, analysis and interpretation of the findings, as assumptions could have been made based on my own experiences. I strived to take an objective perspective and reflect on my stance as main researcher in the research to raise awareness of how my background might shape the findings and reflected on the implications within the research team.

## **Directions for practice**

This dissertation underpins that EDR is a suitable approach for addressing the educational challenge of developing complex competences, such as SDM, in settings of workplace learning in medical education. We experienced EDR to be engaging as it allowed us, as researchers, creative freedom in selecting research methods that fitted to our research questions and the affordances of the educational context. Additionally, EDR is enjoyable due to the close collaboration with stakeholders, which provides deep insight into educational challenges, needs and practical issues and often offers feasible, relevant and refreshing solutions. However, EDR can also be challenging, as it usually is a longitudinal process that requires coordination to keep stakeholders engaged. Also, different viewpoints and priorities may arise, which need careful consideration. Moreover, when the educational content is complex, stakeholders need to develop an understanding of the content and the development of didactic strategies, which includes simultaneous training of educators. Despite these challenges, the benefits of EDR in terms of theoretical insights and practical solutions can make this approach valuable for addressing other educational challenges in a complex educational context. When educational challenges are more straightforward, time and resources are limited or only practical solutions are pursued, we argue that stakeholder involvement in the educational development process may still be considered to optimally align with their educational needs and experiences.

Furthermore, we recognised potential directions for improving learning of SDM during postgraduate medical education. These were largely summarised in **Chapter 5** as educational design principles. The design principles include elements for guiding the design of educational interventions for SDM, focusing on both construction in the context of clinical workplace learning – formulated as procedural design principles – and content needed to develop competences for performing SDM – formulated as substantive design principles. In summary, the procedural design principles focus on

longitudinal training towards integrated performance of SDM in the workplace, which requires parallel training of supervisors as SDM role models and didactic coaches for collaborative workplace learning. Teachers need autonomy in training didactics, while modelling a positive attitude and demonstrating SDM expertise. The substantive design principles describe the importance of explicating personal attitudes and mission statements towards SDM, creating awareness of its relevance to foster learning, continuous focus on practical application and use of supportive tools during training and integration of communication and medical competencies. The design principles should be viewed as heuristics to consider and need to be aligned to a specific educational context. Adjustments to the local educational context may be supported by an additional exploration of the actual educational needs. The four EPAs for SDM resulting from **Chapter 2** can be used to formulate educational objectives for training.

Overall, we recommend that training should stimulate longitudinal engagement in learning activities in clinical practice that meet personal educational needs for SDM. As residents' learning mainly takes place in the clinical setting, it is crucial to continuously focus on the practical application of SDM and stimulate workplace-learning activities. Repeated practice of SDM during consultations, reflection on personal attitudes, behaviour and experiences, and feedback on performance are needed for developing SDM performance. Since supervisors are significant for guiding residents' learning processes in clinical practice, they should be aware of their role as a role model and need both SDM proficiency and didactic skills.

## **Directions for future research**

To address the challenges of this dissertation, it would be worthwhile for future research to investigate four themes: the SDM training programme's implementation in the regular curriculum; objectified effects on workplace learning and SDM performance; patient perspectives and feedback on learning SDM; and the application of the educational design principles in health professions education settings.

First, it would be interesting to investigate the experiences with the implementation of the SDM training programme in the regular curriculum of postgraduate medical education, as this research only involved implementation over six months in separate first- and third-year groups. For this purpose, the training programme could be implemented and evaluated throughout the full duration of specialty training, starting from year one and continuing throughout the entire course of the training. Researchers could explore how to redesign the training programme in terms of alignment between individual learning trajectories of residents during the general practice specialty

training and the needed increasing complexity in learning SDM. While residents progress through education, supervisors might repeatedly guide residents who are in the same training year. Therefore, it might also be interesting to investigate how to align implementation in the regular curriculum with both residents' and supervisors' educational needs. As teachers faced difficulties in integrating SDM into the content of the overall curriculum, it also might be worth investigating how to facilitate this integration into, for example, training of consultation skills, evidence-based medicine and medical knowledge.

Second, as the effects of the training programme on workplace learning activities and the development of SDM performance were based on stakeholder experiences, only self-reported effects were identified. It would be valuable to observe and reflect on actual learning activities that integrate SDM in the clinical workplace to see how these take place in terms of residents' approaches to learning, bidirectional learning of residents and their supervisors, supervisors' role modelling of SDM behaviour and supervisors' coaching of residents' learning. Additionally, in future research, clinical encounters of both residents and supervisors could be observed and then reflected on, focusing on their performance and underlying motivation for SDM. Ethnographic research could be valuable as, although labour intensive for researchers and potentially burdensome for participants, immersing in the clinical workplace provides insight into what is actually happening in everyday practice. Additionally, as development of SDM competence takes time, it would also be interesting to follow clinicians after completing postgraduate medical education to see how SDM performance develops throughout the years and what remaining learning needs are for continuous professional education.

Third, in reflecting on the design, implementation and evaluation of the training programme, we realised that it might be valuable to include patient perspectives on SDM more explicitly in learning. Future research could include patients in educational interventions for learning SDM to align education with what is experienced as important by patients in decision-making. Also gaining insight into patient experiences during SDM in clinical practice could create valuable feedback for residents and supervisors and affect their perspective on the patient's desired role in the decision-making process. Therefore, it might be interesting to reflect with patients on the extent to which they were involved in decision-making and if this was congruent with their desired role in feedback dialogues or when jointly watching the video-recorded consultation.

Finally, although it was suggested that the developed educational design principles for workplace learning of SDM are generalisable, these principles derive from studies conducted in a specific postgraduate educational context. Research in other health professions educational contexts, including undergraduate medical training and

continuous professional education, could focus on how to transfer the design principles and what approach is needed, which might be supported by an exploration of the educational context and stakeholders' educational needs.

## **Conclusion**

This dissertation provided insight into how longitudinal SDM training, integrated into clinical workplace learning during postgraduate medical education, can support residents and their supervisors in learning SDM. These insights can offer guidance to educational designers and educators in developing educational interventions for SDM tailored to their specific health professions educational context. Stakeholder involvement in the educational development process appeared crucial for aligning with their educational needs and experiences and should therefore be considered by educational designers and researchers.

The studies in this dissertation suggested that educational interventions for SDM should align formal training with clinical workplace learning. Continuous attention to the practical application of the needed competencies, practising SDM at the workplace and evaluation of clinical experiences and performance is necessary. Simultaneously, the relevance of SDM to the profession and personal views and attitudes towards SDM need to be addressed as this influences when and how SDM is performed. It is helpful if teachers of formal training have expertise and clinical experience in the educational content and model a positive attitude towards SDM. Clinical supervisors are essential for supporting residents' learning processes in the clinical workplace and might benefit from further developing their own SDM performance and didactic training.

## **Personal implications**

As a resident in general practice, I had a unique position to explore how SDM is learned within the context of postgraduate medical education. I experienced the dynamics of learning SDM from the resident's perspective through interaction with my patients, supervisors, teachers and peers. I felt the importance of practice, reflection and feedback in the workplace. And although I feel SDM is part of my professional identity as a clinician, I also faced challenges when my medical knowledge was insufficient, the patient was reluctant, or my schedule was running late. While I attempt to listen carefully to my patients, be curious about them, and be flexible and creative in seeking the option that fit them best, I do not always succeed in involving them in decision-making. Conducting this research made me very aware of my personal learning



experiences in clinical practice, both as a resident and a patient, and contributed to shaping my professional development and strengthened my commitment to perform patient-centred care. I hope that over the years, my competences will further improve so that my patients truly feel that I have become a general practitioner who tries to see the person they really are.

Over the years that I worked on this dissertation, I have seen peers, supervisors and teachers struggling with involving patients in decision-making. I hope this work reflects their challenges and experiences and shows opportunities for learning SDM in formal education and clinical practice. I also hope this dissertation contributes to the development of effective educational interventions for SDM, to ensure that my colleagues are well-equipped to involve their patients in the decision-making process and empower them.

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Shared decision making (SDM) is widely recognised as the preferred approach to involve patients in medical decisions. The aim of this dissertation was to develop a longitudinal SDM training programme for postgraduate medical education, integrated into workplace learning, and aligned with stakeholders' educational needs. This serves both a practical aim: to develop an evidence-informed SDM training programme that allows residents (and their supervisors) to improve their SDM performance in the clinical workplace; and a scientific aim: to understand how SDM training can optimally support clinical workplace learning of SDM for residents and their supervisors. The Dutch general practice specialty training was chosen as a study setting due to its potential supportive clinical learning environment and the relevance of SDM for the profession. This chapter describes the scientific and societal impact of the main findings of this dissertation.

## **Research summary**

The studies presented in this dissertation provide valuable insights into learning of SDM during postgraduate medical education. First, we identified what residents need to learn to perform adequate SDM in clinical practice, formulated as entrustable professional activities (EPAs). These EPAs can help define educational objectives, guide observations of SDM during consultations, provide feedback and assess competence development. We also explored residents' SDM performance from the perspectives of observers, residents and patients. These insights are helpful for appropriately tailoring educational interventions. Our findings suggested that it is important to focus on learning to adapt SDM to the context of consultations and addressing residents' beliefs and motivation towards performing SDM. We also identified residents' educational needs for workplace learning of SDM and found that continuous attention to SDM during postgraduate medical education is important for acquiring SDM knowledge and skills and practising SDM in the clinical workplace. It is essential that the educational curriculum, workplace learning and learning activities are aligned to support residents' development. We also found that supervisors need parallel training to effectively support residents' learning. Finally, we outlined the design, implementation and evaluation of an SDM training programme. This resulted in the formulation of educational design principles, which describe how learning could be constructed and how the content of learning could be formulated. These principles may guide educational designers in designing SDM training tailored to their specific health professions educational contexts. The training programme also seemed to stimulate specific learning activities in the workplace, and we gained insight into factors influencing workplace learning of SDM. These findings highlighted the importance of linking formal training with clinical workplace learning for SDM.

## Scientific and societal relevance

SDM is an important competence for healthcare professionals, their patients, healthcare and society in general. It is recognised by ethical and legal bodies as an essential ingredient of high-quality care. Effective SDM training is expected to improve patient involvement in decision-making in daily clinical practice. This positively affects clinical outcomes and possibly reduces healthcare use and costs. Our research was the first to study longitudinal SDM training integrated into clinical workplace learning for both residents and supervisors, providing novel insights into how learning could be constructed and how the content of learning could be formulated to support the development of SDM performance. These insights are valuable for transferring our findings from general practice specialty training to SDM training in other health professions educational contexts. Ultimately, this could lead to evidence-informed SDM training integrated into clinical workplace learning across various healthcare settings. This is especially important given that current SDM educational interventions, which are often stand-alone interventions, have limited effect on clinical performance.

This dissertation also highlights the value of using the methodological framework of educational design research (EDR) to address educational challenges, such as developing competences in the complex setting of workplace learning in medical education. As examples of performed EDR studies are relatively scarce, particularly for developing longitudinal training, this dissertation could offer useful insights for other health professions education researchers on how to conduct an EDR study.

## Target groups

First, the results of this dissertation are relevant for educators in postgraduate medical education training, including curriculum coordinators and educational designers who develop the educational curricula for residents. They should become aware of the importance of including SDM into their curricula and how they could address this. It is especially to recognise that educational interventions need to pay attention to supporting longitudinal learning of SDM in the clinical workplace. Additionally, it is essential to acknowledge the complexity of learning SDM and make sure that both teachers and clinical supervisors are adequately prepared to support residents' learning. As local educational curricula are often based on national requirements, the results can also be interesting for policymakers and national boards of healthcare professions who set these requirements. The findings could also be transferred to teachers, residents and clinical supervisors, as this dissertation shows how collaboration with these stakeholder groups shaped the SDM training programme. The findings could also be inspiring for their own

role in the SDM learning process as improving SDM performance requires repeated practice and evaluation in the workplace. The findings of this dissertation can support teachers and clinical supervisors in their function as SDM role models for residents.

Second, the results are intended for health professions education in general as learning SDM is important for all health professions. More attention should be paid to effective educational interventions for SDM in all stages of health professions education, from undergraduate education to continuous professional development, to support the alignment of learning SDM.

Third, scientific organisations of (para)medical professions which develop clinical guidelines are targeted. They need to consider the supportive effects of including SDM and presenting multiple options in clinical guidelines and developing additional tools such as decision aids and option grids to help learners to increase their medical knowledge and identify clinical situations suitable for SDM.

Finally, researchers in the field of health professions educational design could use this dissertation as an example for conducting EDR to address educational challenges and involve stakeholders in educational design. For them, it is important to realise that EDR provides deep insights into educational challenges, needs and practical issues and often offers feasible, relevant and refreshing solutions. However, awareness how challenging performing EDR can be is helpful, as it usually is a longitudinal process which requires coordination to keep stakeholders engaged, careful consideration of different viewpoint and priorities, and support of stakeholders to foster understanding of the content and development of appropriate didactic strategies.

## **Dissemination activities**

To share the results of this dissertation with the target groups, we carried out several activities. We published scientific articles in international peer-reviewed open-access journals (Chapters 2-4) and we intend to publish the remaining chapters (Chapter 5 and 6) as well. We specifically chose journals with different focuses, such as medical education, doctor-patient communication and medicine in general, to reach a broad audience. One of these articles was nominated for the Dutch College of General Practitioners Science Award 2022 and received special attention in a commentary article discussing the transferability of our findings to the context of oncology (Patient Education and Counseling, 2023). Another article appeared in a news item (Huisarts & Wetenschap, 2024). Our findings were also published in national journals for general practice (Huisarts & Wetenschap, 2021 & 2022; Tijdschrift voor Praktijkondersteuners

en Praktijkverpleegkundigen 2024). These articles were written from a practical approach to inspire practising healthcare professionals and to be useful for learning in educational settings. One of these articles was mentioned in the journal's editorial and led to an invitation to participate in a podcast about using decision aids and option grids in general practice (Huisarts Podcast, 2022). We noticed that both international and national articles are gaining attention, as they are regularly cited by other researchers.

Many of the target groups were acquainted with our findings at local, national and international conferences and meetings. Our scientific work was presented both on invitation and acceptance through workshops, oral presentations and poster presentations during the 2017, 2019 and 2022 international SDM conference (ISDM); the 2017 national Postgraduate Medical Education (MMV) conference; the 2018 international Conference on Communication in Healthcare (ICCH); the 2019 European Association of Communication in Healthcare (EACH) Forum; a theme session of the Netherlands Association for Medical Education (NVMO) in 2022; the 2024 NVMO conference; and several meetings of the national doctor-patient communication (APC) platform in general practice specialty training, the grant programme general practice and elderly care (HGOG), the national platform SDM, the local Care and Public Health Research Institute (CAPHRI) research line 'promoting health & personalised care', and the associated department of Family Medicine.

I also contributed to a conference at an organisational level as member of the scientific committee of the 2021 international World Organisation of National Colleges, Academies and Academic associations of General Practitioners/Family Physicians (WONCA) Europe conference on person-centred care. Here, I shared my knowledge on (learning) SDM and person-centred care in general practice in a broader sense. This committee is also where I connected with researchers from Leuven University who planned to start research on learning SDM in medical education in Flanders, Belgium. Meetings with these researchers led to knowledge exchange and new scientific opportunities for our research team.

This dissertation led to an SDM training programme. The training materials have been shared with the curriculum coordinators of all Dutch general practice specialty training institutes and we provided an explanatory presentation and consultation upon request to support these training institutes. The first steps have been taken to implement the training programme into the regular curriculum of general practice specialty training. For example, all supervisors in Maastricht were trained during fall 2024, for which we additionally co-developed a train-the-trainer module for teachers, and the training materials were added to the local digital educational blackboard in Amsterdam. All training materials are made openly available through the academic cloud service

Surfdrive. The training materials were also used to train healthcare professionals in SDM in Maastricht University Medical Centre (MUMC+), Zuyderland Medical Centre and Alrijne Hospitals, and to train clinicians, nurses and doctor's assistants in South Limburg in communication skills regarding urinary tract infections. Additionally, I was member of the national committee 'education & training in SDM', programme Uitkomstgerichte Zorg for the Ministry of Health, Welfare and Sports. I shared our findings to inform the e-learning 'the core of SDM' which resulted from this programme. Furthermore, our findings will be used to inform a training programme for undergraduate medical education at Maastricht University, which started fall 2024. One of our team members was awarded a Comenius Teaching Fellowship for this project, and I have been appointed to work on it. This will support the alignment between undergraduate and postgraduate medical education for learning SDM. I have also been involved in the development of a training module on risk communication for masters' students in medicine during their general practice clerkship, and as a teacher in undergraduate medical training, I attempt to make students aware of the importance of SDM and how to apply SDM during consultations.

I also shared our insights with the Dutch College of General Practitioners (NHG) during an elective placement at their department of Guideline Development and Science. During this internship, I analysed all NHG's clinical guidelines (NHG-Standaarden & -Behandelrichtlijnen) on appropriate decisions for SDM to guide the development of option grids and propagated the importance of these tools for residents' learning. I presented the findings at the NHG, the general practice specialty training institute in Maastricht and the 2021 WONCA conference, where we received recognition as being one of the best abstracts. The findings were also published in the national journal for general practice (Huisarts & Wetenschap, 2022). Afterwards, multiple option grids were developed based on this analysis, supporting healthcare professionals and patients in SDM in clinical practice.

The impact of our work was further acknowledged through an invitation to join the editorial board for a theme issue on doctor-patient communication for Huisarts & Wetenschap, the national journal for general practice. I used my gained expertise in SDM to address this topic in the theme issue. Additionally, I was interviewed by ZonMw, the Dutch health research funder, and Qruux, an online care platform. This helped us to share our findings with a broader scientific and healthcare audience. Furthermore, we contributed to other scientific research, for example on the development of educational interventions for SDM in Flanders and a website for learning evidence-based medicine during general practice specialty training. Additionally, I used the knowledge gained from this project as a co-author on several publications in Huisarts & Wetenschap. I also

trained multiple (inter)national research teams in using the OPTION<sup>5</sup> tool for assessing SDM performance during consultations.

I continue combining clinical work, research and teaching, thereby aiming to contribute to the implementation of SDM learning in clinical practice.







## English summary

Shared decision making (SDM) is widely recognised as the preferred approach to involve patients in medical decisions. In this process, the healthcare professional and the patient work together to make a deliberate decision about which diagnostic, treatment or management option best suits the patient. These decisions are based on the healthcare professional's expertise, the patient's personal values and preferences and the available evidence. Although most healthcare professionals and patients consider it important to share decisions, evidence shows that patient involvement in decision-making in daily clinical practice is still limited.

To support the implementation of SDM in clinical practice, there is a growing emphasis on training healthcare professionals. Yet, the effectiveness of educational interventions for SDM targeting clinical performance remains limited. This may reflect the complexity of transferring SDM knowledge and skills acquired in training into clinical performance. This complexity necessitates a continuous process of applied learning in the clinical workplace, for which postgraduate medical education is considered a suitable period. During postgraduate medical education, residents work in the clinical workplace under supervision of experienced clinicians and develop competences for independent practice of the profession while also shaping their attitudes and behaviours as medical professionals.

However, it is unknown how educational interventions for workplace learning can effectively stimulate the transfer of learning SDM into clinical performance. The aim of this dissertation was to develop a longitudinal SDM training programme, integrated into postgraduate workplace learning, aligned with the educational needs of stakeholders. This served both a practical aim: to develop an evidence-informed SDM training programme that allows residents (and their supervisors) to improve their SDM performance in the clinical workplace; and a scientific aim: to understand how training can optimally support clinical workplace learning of SDM for residents and their supervisors.

Educational design research (EDR) was used as the research approach, as it adopts the complexity of learning SDM and at the same time aligns with the aims of this dissertation. The Dutch general practice specialty training was chosen as the study setting due to the relevance of SDM for the profession and its potential for a supportive clinical learning environment.

The studies in this dissertation answered the following research questions:

1. What entrustable professional activities (EPAs) for SDM need to be learned during postgraduate medical education to perform adequate SDM in clinical practice?
2. What is the current SDM performance level of residents?
3. What are residents' educational needs for workplace learning of SDM?
4. How to design an evidence-informed SDM training programme for postgraduate medical education?
5. How does a longitudinal SDM training programme contribute to experienced learning and application of SDM by residents and their supervisors in the workplace?

### **Entrustable professional activities for shared decision making**

In **Chapter 2**, the development of EPAs and behavioural indicators for learning SDM during postgraduate medical education is outlined. EPAs make explicit what needs to be learned during education and are therefore important for guiding the content of residents' learning. We conducted a Delphi consensus study, using three rounds of questionnaires, to reach agreement on what EPAs and behavioural indicators should be included in the curriculum of postgraduate medical education. Dutch experts (n = 32) in SDM research, education and clinical practice reached consensus on four EPAs:

1. The resident discusses the desirability of SDM with the patient
2. The resident discusses the options for management with the patient
3. The resident explores the patient's preferences and deliberations
4. The resident takes a well-argued decision together with the patient

Additionally, consensus was reached on 18 behavioural indicators detailing the content of these EPAs. Of the 32 experts, 30 (94%) agreed on this list of SDM EPAs and behavioural indicators. No consensus was reached on the behavioural indicator 'the resident introduces own preferences where indicated,' as this was believed to influence the patient too much in the decision-making process.

We suggested that the developed EPAs can be used as a tool for observing the SDM process in clinical encounters and providing meaningful feedback. For the EPAs to support the development of expertise, individual learning processes should be a starting point to avoid a box-checking approach. In line with how EPAs are used in postgraduate medical education, the identified EPAs may also guide the assessment of residents' competence development. Additionally, the EPAs can be incorporated into the continuous professional education of supervisors to enhance their SDM competence, since adequate role modelling is essential in workplace learning.

## **Residents' shared decision-making performance**

**Chapter 3** describes a quantitative descriptive study evaluating the SDM performance of first-year residents (n = 11) and third-year residents (n = 9) by combining the perspectives of observers, residents and patients. Insight into residents' performance is helpful for tailoring educational interventions appropriately. To achieve this, 98 consultations between general practice residents and their patients were recorded. Observers assessed residents' SDM performance in these consultations using the validated OPTION<sup>5</sup> instrument. Additionally, residents completed the SDM-Q-Doc questionnaire and patients completed the SDM-Q-9 questionnaire to assess their perceptions of SDM performance in these consultations. A question was added to both questionnaires to measure how relevant residents and patients considered performing SDM for their consultation. The scale of all three instruments ranges from 0 (no SDM performance or experience) to 100 (optimal SDM performance or experience).

The mean total OPTION<sup>5</sup> score for all 98 consultations was 19.1 (SD = 10.9), the mean total SDM-Q-Doc score was 56.9 (SD = 18.5) and the mean total SDM-Q-9 score was 73.3 (SD = 26.8). In other words, on average, the observers rated the residents' SDM performance at 19.1, residents rated their own performance at 56.9, and patients rated residents' performance at 73.3, all on a scale of 0-100. Thus, the observed SDM performance of residents was much lower compared to the perception of residents and patients. The observed SDM performance was significantly higher in consultations for which residents perceived SDM as relevant and in longer consultations.

We concluded that there is room for increasing awareness of the potential incongruence between observed and perceived SDM performance. For postgraduate medical education, the findings suggest that attention needs to be given to tailoring the process of SDM in a context-sensitive manner throughout consultations. Additionally, it is important to raise residents' awareness of their own SDM performance, with the aim of improving their practice of SDM. Observations and feedback on actual performance can be valuable for these purposes.

## **Residents' educational needs for workplace learning of shared decision making**

In **Chapter 4**, a qualitative study exploring residents' educational needs for workplace learning of SDM is described. Understanding these educational needs is helpful to optimise resident engagement during workplace learning. We conducted video-stimulated interviews with 17 general practice residents, where they reflected on recorded consultations of their encounters with patients. These consultations, collected during the study described in the previous chapter, were watched during the interview and each resident was encouraged to reflect on their thoughts, feelings, behaviours and educational needs.

The residents mentioned the need to acquire specific knowledge and skills to effectively apply SDM in clinical practice. They expressed the need to learn about the SDM process and when it is relevant in clinical situations, as well as the importance of knowledge about the available options to confidently deliberate with patients. Clinical guidelines and evidence-based health information that list options or include decision aids were considered valuable tools. Residents also wanted to learn communication skills for SDM, such as exploring patients' preferences, and skills for challenging situations, such as when patients leave the decision to the resident in a passive manner or demand inappropriate options. Repeated practice in the workplace, reflection and feedback were considered essential for learning SDM. Longitudinal training was considered beneficial for reinforcing the importance of SDM and repetition and fine-tuning of personal performance. Residents suggested integrating SDM into medical and evidence-based medicine training. Views on the optimal timing for introducing SDM during speciality training varied between residents.

Raising awareness and motivation for performing SDM seemed essential in learning SDM. Residents reported specific attitudes that influence learning of SDM, such as their opinions of what seems the best option for the patient – resulting from a feeling of responsibility and belief that they know what is best for their patient – as well as patient and decision characteristics. Motivation was also influenced by (implicit) patient feedback, role models who emphasise SDM and the prioritisation of SDM in the curriculum of specialty training.

We concluded that residents need continuous attention to SDM during postgraduate medical education. This allows them to engage in two parallel learning processes: acquiring SDM knowledge and skills, and practising SDM in the clinical workplace. It is essential that stakeholders involved in residency training align the educational curriculum, workplace learning and learning activities to support residents' development in SDM. Supervisors need parallel training to effectively support residents in becoming proficient in SDM and residents' training should stimulate engagement in learning activities for SDM that meet their personal educational needs.

### **Designing longitudinal shared decision-making training**

**Chapter 5** outlines the design, implementation and evaluation of a longitudinal SDM training programme for postgraduate workplace learning. This study aimed to examine the process of educational design, construct a blueprint for an SDM training programme, explore stakeholders' experiences with the training programme and formulate principles for educational design, contributing to both a practical educational intervention and theoretical understanding of how this intervention can support clinical workplace learning of SDM. In this study, two first-year and two third-year duos of teachers and

their group of residents and supervisors from two general practice training institutes were involved: in total 8 teachers, 49 residents and 50 supervisors. Mixed research methods were used, including work sessions, observations and debriefings of training sessions, questionnaires, focus groups and interviews. Triangulation between different data sources and stakeholders informed qualitative thematic analysis.

The design process consisted of iterative cycles of (re)design, implementation and evaluation. Two consecutive cycles were conducted per training year, with one cycle for each duo of teachers and their group of residents and supervisors. Each cycle lasted nine months. The first three months focused on designing the training programme through work sessions with teachers. The following six months involved implementation of the training programme by the teachers in their groups of residents and supervisors. Training sessions were observed and debriefed to evaluate implementation and work sessions with teachers continued for (re)design, feasibility assessment and didactic support for teachers. Finally, evaluation occurred through interviews, focus groups and questionnaires to gain insight into learning experiences. During this entire process, researchers reflected on the input from stakeholders to guide the construction of training materials.

This study resulted in a blueprint for an SDM training programme in which the educational themes are provided, with flexibility in how and when these themes are addressed in educational activities. The focus of the training programme includes learning SDM in the clinical workplace, supported by two 90-minute SDM training sessions for first-year residents and two for third-year residents, and integration of SDM into the overall curriculum (e.g. consultation skills, medical knowledge and evidence-based medicine) during formal training. These educational activities focus on attitudes, knowledge and skills for applying SDM in clinical practice, with increasing complexity of the educational content throughout training. Supervisors receive parallel training through separate 90-minute SDM training sessions, which focus on didactic competences to support the residents' learning process and to improve supervisors' SDM performance. Residents and supervisors are encouraged to engage in workplace learning through continuous attention to practical application, setting intentions for workplace learning and joint learning assignments.

The evaluation of the training programme identified six overall themes: 1) stakeholder perspectives on SDM; 2) learning experiences during the training programme; 3) experiences with the blueprint of the training programme; 4) stakeholder educational needs; 5) transfer of training to clinical practice; and 6) experienced effect of training on competence development. Overall, SDM was considered an important educational theme, with the training programme raising awareness of the importance of learning

SDM and increasing supervisors' awareness of being SDM role models. While the training programme was found supportive for workplace learning of SDM, challenges included integrating SDM into the overall curriculum, competing themes in workplace learning and perceptions such as SDM is only possible when options are comparable in terms of benefits and harms and the doctor knows what is best for the patient.

This study resulted in seven procedural educational design principles describing how learning could be constructed and four substantive educational design principles describing how the content of learning could be formulated. The procedural design principles focus on longitudinal training towards integrated performance of SDM in the workplace, which requires parallel training of supervisors as SDM role models and didactic coaches for collaborative workplace learning. Teachers need autonomy in training didactics, while modelling a positive attitude and experiencing SDM expertise. The substantive design principles describe the importance of explicating personal attitudes and mission statements towards SDM, creating awareness of its relevance to foster learning, continuous focus on practical application and use of supportive tools during training and integration of communication and medical competences.

We concluded that stakeholder involvement in the design, implementation and evaluation of the training programme seems crucial for aligning with their educational needs and experiences. The design principles may offer guidance to educational designers for designing an evidence-informed SDM training programme tailored to specific health professions educational contexts.

### **Contribution of longitudinal shared decision-making training to workplace learning**

**Chapter 6** describes the role of the designed SDM training programme in fostering workplace learning of residents and their supervisors. The study explored how this training programme supported the learning and performance of SDM in the clinical workplace, aiming to understand how to align training with clinical workplace learning. The training programme was implemented in two general practice training institutes. We performed focus groups and questionnaires with 31 residents and 36 supervisors, and interviews with eight teachers from the two institutes. These data sources were triangulated and complemented with observations and debriefings of training sessions.

This study suggested that the training programme supports residents and supervisors to practice SDM in postgraduate workplace learning. Insight was provided into how the training programme supported workplace learning activities, being practice during consultations, reflection during learning conversations and performing (bidirectional) observations. However, not all residents and supervisors engaged in these workplace

learning activities. We identified factors affecting workplace learning. First, perceptions regarding the desired decisional role played a role. These perceptions were shaped by personal attitudes towards SDM, such as visions on appropriate situations and patients for SDM, perceptions of their own role, beliefs about how patients view the doctor's role, and personal preferences regarding options. Additionally, experiences with SDM during consultations – such as patient reactions, SDM outcomes and the naturalness of applying SDM – seemed to influence perceptions regarding the desired decisional role. Furthermore, personal attitudes towards learning SDM, such as perceived relevance (to learn) and the importance of workplace learning were expressed. Second, preconditions for practising SDM were identified. These preconditions included time to integrate SDM into consultations, cognitive space for practice, confidence in medical knowledge and experience with options, and access to supportive tools (e.g. decision aids, option grids and clinical guidelines). Finally, the importance of didactic skills of supervisors to coach SDM was expressed. Including SDM on the agenda during workplace learning was crucial but challenging due to competing priorities and different expectations between residents and supervisors about who should address SDM. Also, supervisors' roles as coaches and role models were emphasised, with supervisors expressing the need to feel equipped in SDM to better guide residents.

We concluded that this study highlighted the importance of bridging formal training with clinical workplace learning for SDM. Longitudinal and integrated training for both residents and supervisors seems promising for promoting sustained workplace learning. Preconditions for developing SDM performance include motivation for learning, sufficient time and cognitive space for practice, sufficient medical knowledge and expertise, and a supportive learning environment with supervisors being positive role models and coaches in SDM for residents' learning processes.

## **General discussion**

**Chapter 7** presents the general discussion of this dissertation. First, the main findings of the studies performed are summarised. We then discuss how the studies align with the process of EDR, demonstrating how the core phases of EDR were executed. This led to both theoretical understanding and the development of an educational intervention for SDM, along with its implementation and spread in specialty training. Subsequently, we reflect on the role of professional identity formation in residents' learning of SDM, drawing on Biesta's three domains of educational purpose: 1) qualification; 2) socialisation; and 3) subjectification. These domains describe the multiple roles that education plays in professional development and emphasise that it involves not only the acquisition of competence but also the professional identity formation of individuals. We conclude that although these domains were addressed in the SDM training programme, further improvements could be made. This could be achieved by fostering bidirectional

learning between residents and supervisors. Encouraging reflection on the norms, values and expectations of the profession in educational dialogues and how residents want to implement SDM in practice is also essential. Additionally, incorporating feedback dialogues with patients to reflect on their experiences with decision-making in clinical practice supports this professional identity formation.

This is followed by a reflection on the methodological strengths and limitations of the study designs, involved stakeholders and settings, all of which are relevant when considering the generalisability of our findings. The background of the research team, particularly my dual role as both researcher and resident, is also reflected on, as it may have shaped the findings. Additionally, we provide directions for practice regarding the use of EDR to address the challenge of developing complex competences in workplace learning in medical education. Specifically, we argue that stakeholder involvement should be considered to optimally align with their educational needs and experiences. We also suggest potential directions to improve the educational interventions targeting SDM during postgraduate medical education, primarily through the formulated educational design principles. These design principles may require adjustments to local educational contexts and could be supported by an additional exploration of educational needs.

Then, directions for future research into learning of SDM are presented, focusing on four themes: 1) the training programme's implementation in the regular curriculum; 2) objectified effects on workplace learning and SDM performance; 3) patient perspectives and feedback on learning SDM; and 4) the application of the educational design principles in other health professions educational settings.

We conclude that this dissertation provides insight into how longitudinal SDM training, integrated into clinical workplace learning during postgraduate medical education, can support residents and their supervisors in learning SDM.

Finally, I reflect on the personal implications of learning SDM from my perspective as a resident and how conducting this research made me aware of my own learning process.



## Nederlandse samenvatting

Samen beslissen (SB) wordt algemeen beschouwd als de optimale manier om patiënten te betrekken bij medische beslissingen. In dit proces werken de zorgverlener en de patiënt samen om bewust te kiezen welke optie voor diagnostiek, behandeling of zorg het beste bij de patiënt past. Deze beslissingen zijn gebaseerd op de expertise van de zorgverlener, de persoonlijke waarden en voorkeuren van de patiënt, en het beschikbare wetenschappelijke bewijs. De meeste zorgverleners en patiënten vinden het belangrijk om beslissingen samen te nemen. Toch blijkt uit onderzoek dat de betrokkenheid van patiënten in de dagelijkse praktijk nog beperkt is.

Om de implementatie van SB in de praktijk te ondersteunen, is er steeds meer aandacht voor het trainen van zorgverleners. Echter blijken onderwijsinterventies voor SB maar beperkt effect te hebben op het verbeteren van SB in de praktijk. Dit kan te maken hebben met de complexiteit van het vertalen van kennis en vaardigheden voor SB vanuit de training naar de klinische praktijk. Deze complexiteit vraagt om een continu leerproces op de werkplek. De medische vervolgopleiding lijkt hiervoor een geschikte periode. Tijdens de vervolgopleiding werken artsen in opleiding (aios) in de praktijk onder begeleiding van ervaren artsen. Ze ontwikkelen daar niet alleen de benodigde competenties voor zelfstandig werken, maar ook hun attitude en gedragingen als medische professional.

Het is echter onbekend hoe onderwijsinterventies effectief kunnen bijdragen aan het vertalen van SB naar de klinische praktijk. Het doel van dit proefschrift was om een longitudinale leerlijn voor SB te ontwikkelen, geïntegreerd in het werkplekleren tijdens de medische vervolgopleiding. Deze leerlijn werd afgestemd op de leerbehoeften van de betrokken stakeholders. Dit had zowel een praktisch doel: een onderbouwde leerlijn voor SB ontwikkelen waarmee aios en hun opleiders de toepassing van SB in de praktijk kunnen verbeteren; als een wetenschappelijk doel: inzicht krijgen in hoe training optimaal kan bijdragen aan het leren van SB in de klinische praktijk voor aios en hun opleiders.

Educational design research (EDR) werd gebruikt als aanpak voor onderwijskundig ontwerp onderzoek. In deze aanpak wordt de complexiteit van het leren van SB erkend en sluit daarom aan bij de doelen van dit proefschrift. De onderzoeken vonden plaats binnen de setting van de Nederlandse huisartsopleiding. SB is namelijk relevant voor huisartsen en de opleiding biedt een ondersteunende leeromgeving.

De onderzoeken in dit proefschrift beantwoordden de volgende onderzoeksvragen:

1. Welke kenmerkende beroepsactiviteiten (KBA's) voor SB moeten aios leren tijdens de medische vervolgopleiding om SB effectief toe te passen in de klinische praktijk?
2. Wat is het huidige niveau van SB van aios?
3. Wat zijn de leerbehoeften van aios voor het leren van SB op de werkplek?
4. Hoe kan een wetenschappelijk onderbouwde leerlijn voor SB in de medische vervolgopleiding worden ontworpen?
5. Hoe kan een longitudinale leerlijn voor SB bijdragen aan het leren en toepassen van SB door aios en hun opleiders in de klinische praktijk?

### **Kenmerkende beroepsactiviteiten voor samen beslissen**

In **Hoofdstuk 2** wordt beschreven hoe KBA's en gedragsindicatoren zijn ontwikkeld voor het leren van SB tijdens de medische vervolgopleiding. KBA's maken expliciet wat geleerd moet worden tijdens de opleiding. Daarom zijn deze belangrijk om de inhoud van het leerproces van aios te sturen. We voerden een Delphi-studie uit. We vroegen in drie rondes om vragenlijsten in te vullen met als doel om overeenstemming te bereiken over welke KBA's en gedragsindicatoren opgenomen moeten worden in het curriculum van de medische vervolgopleidingen. Nederlandse experts (n = 32) in SB op het gebied van onderzoek, onderwijs en klinische praktijk kwamen tot overeenstemming over vier KBA's:

1. De aios bespreekt de wenselijkheid om samen te beslissen met de patiënt
2. De aios bespreekt de opties voor het beleid met de patiënt
3. De aios verheldert de voorkeuren en afwegingen van de patiënt
4. De aios neemt samen met de patiënt een gemotiveerd besluit

Er werd ook overeenstemming bereikt over 18 gedragsindicatoren die de inhoud van deze KBA's beschrijven. Van de 32 experts waren er 30 (94%) het eens met deze lijst van KBA's en gedragsindicatoren. Er was geen overeenstemming over de gedragsindicator 'de aios brengt op indicatie de eigen voorkeur in.' De experts vonden dat dit de patiënt te veel zou kunnen beïnvloeden in het besluitvormingsproces.

Onze aanbeveling was dat de ontwikkelde KBA's gebruikt kunnen worden als een hulpmiddel om het proces van SB tijdens consulten te observeren en betekenisvolle feedback te geven. Om de ontwikkeling van expertise te ondersteunen, moeten individuele leerprocessen centraal staan bij het gebruik van de KBA's. Dit voorkomt dat het slechts als een afvinklijst wordt gebruikt. De ontwikkelde KBA's kunnen ook ondersteunen bij het beoordelen van de competentieontwikkeling van aios. Daarnaast kunnen de KBA's worden opgenomen in de nascholing van opleiders om

hun competenties in SB te bevorderen. Effectieve rolmodellen zijn namelijk essentieel voor het leren op de werkplek.

### **Niveau van samen beslissen van artsen in opleiding**

In **Hoofdstuk 3** wordt een kwantitatief beschrijvend onderzoek naar het niveau van SB van eerstejaars aios (n = 11) en derdejaars aios (n = 9) beschreven. Hierbij zijn de perspectieven van observatoren, aios en patiënten gecombineerd. Inzicht in het niveau van SB van aios helpt om onderwijsinterventies beter af te stemmen op hun leerbehoeftes. Voor dit onderzoek zijn 98 consulten van huisartsen in opleiding en hun patiënten opgenomen. Observatoren beoordeelden het SB niveau van de aios in deze consulten met het gevalideerde instrument OPTION<sup>5</sup>. Daarnaast vulden de aios zelf de SDM-Q-Doc vragenlijst in, en patiënten vulden de SDM-Q-9 vragenlijst in om hun kijk op het SB niveau in de consulten te geven. Aan beide vragenlijsten werd een vraag toegevoegd om vast te stellen hoe relevant aios en patiënten SB vonden in hun consult. De scoringschaal van alle drie de instrumenten loopt van 0 (geen SB) tot 100 (optimale SB).

Het gemiddelde van de totale OPTION<sup>5</sup>-score voor alle 98 consulten was 19,1 (SD = 10,9), het gemiddelde van de totale SDM-Q-Doc-score was 56,9 (SD = 18,5) en het gemiddelde van de totale SDM-Q-9-score was 73,3 (SD = 26,8). In andere woorden, de observatoren beoordeelden het niveau van SB van de aios gemiddeld met 19,1, de aios beoordeelden hun eigen niveau op 56,9 en de patiënten beoordeelden het niveau van de aios op 73,3, allemaal op een schaal van 0-100. Het geobserveerde SB niveau van de aios was dus aanzienlijk lager in vergelijking met hun eigen inschatting en die van de patiënten. Het geobserveerde SB niveau was significant hoger in consulten waarin aios SB als relevant zagen en in consulten die langer duurden.

We concludeerden dat er ruimte is voor het vergroten van het bewustzijn over het mogelijke verschil tussen geobserveerde en ervaren SB niveaus. Voor de medische vervolgopleiding betekent dit dat er aandacht moet zijn voor het leren afstemmen van het proces van SB op de context van het consult. Ook is het belangrijk om aios bewust te maken van hun eigen SB niveau, zodat zij hun toepassing van SB in de praktijk kunnen verbeteren. Observaties en feedback op de daadwerkelijke toepassing in de klinische praktijk kunnen hierbij nuttig zijn.

### **Leerbehoeften van artsen in opleiding voor het werkplekleren van samen beslissen**

In **Hoofdstuk 4** wordt een kwalitatief onderzoek beschreven waarin de leerbehoeften van aios voor het leren van SB op de werkplek worden onderzocht. Inzicht krijgen in deze leerbehoeften kan helpen om hun betrokkenheid bij het werkplekleren te optimaliseren. We voerden video-gestimuleerde interviews uit met 17 huisartsen in opleiding. Hiervoor

gebruikten we een deel van de consulten die werden opgenomen tijdens het onderzoek dat in het vorige hoofdstuk wordt beschreven. Tijdens de interviews bekeken de aios deze consulten en werden ze aangemoedigd om te reflecteren op hun gedachten, gevoelens, gedragingen en leerbehoeften.

De aios gaven aan dat ze specifieke kennis en vaardigheden nodig hebben om SB effectief toe te kunnen passen in de praktijk. Ze wilden leren over het proces van SB en in welke klinische situaties SB relevant is. Ook vonden ze het belangrijk om meer kennis te krijgen over de beschikbare opties zodat ze vanuit vertrouwen met patiënten kunnen overleggen. Klinische richtlijnen en wetenschappelijk onderbouwde gezondheidsinformatie waarin de opties worden genoemd of bestonden uit keuzehulpen, werden als nuttige hulpmiddelen gezien. De aios wilden ook communicatievaardigheden leren voor SB, zoals het verkennen van de voorkeuren van patiënten. Daarnaast wilden ze vaardigheden leren om met lastige situaties om te gaan, zoals wanneer patiënten de beslissing aan de aios overlaten of niet passende opties willen. Herhaaldelijk oefenen in de klinische praktijk, reflectie en feedback werden essentieel gevonden voor het leren van SB. Longitudinale training werd nuttig gevonden om het belang van SB te versterken en om de eigen toepassing te blijven oefenen en te verfijnen. De aios stelden voor dat SB geïntegreerd zou kunnen worden in medisch inhoudelijk en evidence-based medicine onderwijs. De meningen over het ideale moment om SB voor het eerst aan bod te laten komen in de medische vervolgopleiding verschilden tussen de aios.

Bewustwording en motivatie om SB toe te passen bleken essentieel voor het leren van SB. De aios meldden specifieke attitudes die invloed hadden op het leren van SB, zoals hun eigen opvattingen over wat de beste optie lijkt voor de patiënt. Deze opvattingen kwamen voort uit een gevoel van verantwoordelijkheid en de overtuiging dat de zorgverlener weet wat het beste is voor de patiënt, en werden beïnvloed door eigenschappen van de patiënt en de aard van de beslissing. Motivatie werd ook beïnvloed door (impliciete) feedback van patiënten, rolmodellen die het belang van SB benadrukken en de prioriteit die aan SB wordt gegeven in het curriculum van de opleiding.

We concludeerden dat het leren van SB wordt gestimuleerd door continue aandacht voor SB tijdens de medische vervolgopleiding. Hierdoor kunnen aios twee parallelle leerprocessen aangaan: het verwerven van kennis en vaardigheden over SB, en het oefenen van SB in de klinische praktijk. Het is essentieel dat stakeholder die betrokken zijn bij de medische vervolgopleiding, steeds het opleidingscurriculum, het werkplekleren en de leeractiviteiten op elkaar afstemmen. Dit ondersteunt de ontwikkeling van aios in SB. Opleiders hebben parallelle training nodig om aios effectief te kunnen ondersteunen bij het leren van SB. De training van aios zou hen moeten stimuleren voor leeractiviteiten voor SB die aansluiten bij hun persoonlijke leerbehoeften.

## **Ontwerpen van een longitudinale leerlijn voor samen beslissen**

**Hoofdstuk 5** beschrijft het ontwerp, de uitvoering en de evaluatie van een longitudinale leerlijn voor SB gericht op werkplekleren binnen de medische vervolgopleiding. De doelen van dit onderzoek waren om het ontwerpproces in kaart te brengen, een blauwdruk voor een leerlijn voor SB te ontwikkelen, de ervaringen van stakeholders met de leerlijn te onderzoeken en principes voor onderwijskundig ontwerp te formuleren. Dit draagt bij aan een praktische onderwijsinterventie, die ook theoretisch inzicht geeft in hoe deze interventie kan ondersteunen bij het leren van SB op de werkplek. Aan dit onderzoek namen twee duo's van eerstejaars en twee duo's van derdejaars docenten deel, samen met hun groepen van aios en opleiders van twee huisartsopleidingen: in totaal 8 docenten, 49 aios en 50 opleiders. Er werden verschillende onderzoeksmethoden gebruikt, namelijk werksessies, observaties en nabesprekingen van onderwijsbijeenkomsten over SB, vragenlijsten, focusgroepen en interviews. Door data van verschillende bronnen en betrokken stakeholders te combineren, werd een kwalitatieve thematische analyse uitgevoerd.

Het ontwerpproces bestond uit herhalende cycli van (her)ontwerp, uitvoering en evaluatie. Voor elk opleidingsjaar werden twee opeenvolgende cycli uitgevoerd, één cyclus per docenten-duo en hun groep aios en opleiders. Elke cyclus duurde negen maanden. In de eerste drie maanden werd de leerlijn ontworpen door werksessies met docenten. Tijdens de volgende zes maanden voerden de docenten de leerlijn uit in het onderwijs van hun groepen van aios en opleiders. De onderwijsbijeenkomsten over SB werden geobserveerd en nabesproken om de uitvoering te evalueren. Ook bleven werksessies met docenten plaatsvinden voor (her)ontwerp, beoordelen van de haalbaarheid en didactische ondersteuning voor de docenten. Tot slot vond de evaluatie van de leerlijn voor SB plaats door middel van interviews, focusgroepen en vragenlijsten om inzicht te krijgen in de leerervaringen. Gedurende het hele ontwerpproces reflecteerden de onderzoekers op de inbreng van de stakeholders om het onderwijsmateriaal vorm te geven.

Dit onderzoek heeft een blauwdruk opgeleverd voor een leerlijn voor SB. Hierin zijn de onderwijsthema's vastgelegd met ruimte voor flexibiliteit in hoe en wanneer deze thema's in het onderwijs aan bod komen. De leerlijn richt zich op het leren van SB in de klinische praktijk, ondersteund door twee onderwijsprogramma's van 90 minuten over SB voor eerstejaars aios en twee voor derdejaars aios. Het thema SB wordt ook geïntegreerd in het reguliere onderwijscurriculum (bijvoorbeeld consultvoeringsonderwijs, medische inhoudelijk onderwijs en evidence-based medicine onderwijs) tijdens terugkomdagen. Deze onderwijsactiviteiten richten zich op attitude, kennis en vaardigheden voor het toepassen van SB in de praktijk. De complexiteit van de inhoud van het onderwijs neemt toe gedurende de opleiding. Opleiders worden parallel getraind tijdens aparte

onderwijsprogramma's van 90 minuten over SB. Deze richten zich op didactische competenties om het leerproces van de aios te ondersteunen en hun eigen toepassing van SB te verbeteren. Aios en opleiders worden gestimuleerd tot werkplekleren door continu de aandacht te richten op praktische toepassing, formuleren van intenties voor werkplekleren en gezamenlijke leeropdrachten.

De evaluatie van de ervaringen met de leerlijn voor SB leidde tot zes overkoepelende thema's: 1) perspectieven van betrokkenen op SB; 2) leerervaringen tijdens uitvoering van de leerlijn; 3) ervaringen met de blauwdruk van de leerlijn; 4) leerbehoeftes van stakeholders; 5) overdracht van de training naar de klinische praktijk; en 6) ervaren effect op de ontwikkeling van competenties. SB werd over het algemeen gezien als een belangrijk onderwijsthema. De leerlijn zorgde voor meer bewustzijn van het belang van het leren van SB en opleiders werden bewuster van hun functie als rolmodel in SB. Hoewel de leerlijn als ondersteunend werd ervaren voor het werkplekleren van SB, waren er uitdagingen: de integratie van SB in het reguliere curriculum, concurrerende thema's tijdens het werkplekleren en opvattingen, zoals dat SB alleen mogelijk is wanneer opties vergelijkbaar zijn qua voordelen en nadelen, en dat de arts weet wat het beste is voor de patiënt.

Dit onderzoek resulteerde in zeven procedurele onderwijskundige ontwerpprincipes, die beschrijven hoe leren kan worden opgebouwd, en in vier inhoudelijke onderwijskundige ontwerpprincipes, die beschrijven hoe de leerinhoud kan worden vormgegeven. De procedurele ontwerpprincipes richten zich op longitudinale training voor het geïntegreerd toepassen van de competentie SB in de klinische praktijk. Hiervoor is het nodig dat opleiders parallel getraind worden om zowel rolmodellen in SB als didactische coaches te kunnen zijn voor het samen leren op de werkplek. Docenten hebben autonomie nodig in hun didactische aanpak, terwijl ze een positieve attitude laten zien en zich bekwaam voelen in SB. De inhoudelijke ontwerpprincipes richten zich op het belang van het expliciet maken van persoonlijke attitudes en missie ten aanzien van SB; bewustwording van het belang van SB om het leren te bevorderen; een continue focus op de praktische toepassing en het gebruik van hulpmiddelen tijdens het onderwijs; en integratie van communicatieve en medische competenties bij SB.

We concludeerden dat betrokkenheid van stakeholders bij het ontwerp, de uitvoering en de evaluatie van de leerlijn cruciaal blijkt om aan te sluiten bij hun leerbehoeften en ervaringen. De ontwerpprincipes kunnen onderwijsontwerpers helpen bij het ontwikkelen van een theoretisch onderbouwde leerlijn voor SB die is afgestemd op verschillende en specifieke contexten in de gezondheidszorgopleidingen.

## **Bijdrage van longitudinale training in samen beslissen aan het werkplekleren**

**Hoofdstuk 6** beschrijft hoe de ontworpen leerlijn voor SB bijdraagt aan het werkplekleren van aios en hun opleiders. Het onderzoek richtte zich op hoe deze leerlijn het leren en het toepassen van SB in de praktijk ondersteunt om inzicht te krijgen in hoe training kan aansluiten bij het werkplekleren. De leerlijn werd geïmplementeerd bij twee huisartsopleidingen. We voerden focusgroepen uit en namen vragenlijsten af bij 31 aios en 36 opleiders, en verrichtten interviews met acht docenten van de twee opleidingsinstituten. Deze databronnen werden gecombineerd en aangevuld met observaties en nabesprekingen van de onderwijsbijeekkomsten.

Uit het onderzoek bleek dat de leerlijn aios en opleiders helpt bij het toepassen van SB in de praktijk. Er werd inzicht verkregen in hoe de leerlijn leeractiviteiten op de werkplek ondersteunde. Deze leeractiviteiten waren het oefenen tijdens consulten, reflectie tijdens leergesprekken en het uitvoeren van (wederzijdse) observaties. Niet alle aios en opleiders voerden deze leeractiviteiten echter uit. We ontdekten factoren die het werkplekleren beïnvloedden. Ten eerste speelden opvattingen over de gewenste rol in de besluitvorming een rol. Deze opvattingen werden beïnvloed door persoonlijke attitudes ten aanzien van SB, zoals ideeën over in welke situaties en bij welke patiënten SB toepasbaar is. Ook opvattingen over hun eigen rol als arts, hoe ze denken dat patiënten de rol van de arts zien en persoonlijke voorkeuren voor opties speelden een rol. Daarnaast beïnvloedden ervaringen met SB tijdens consulten, zoals reacties van patiënten, uitkomsten van het SB proces en hoe natuurlijk het aanvoelt om SB in te zetten, de opvattingen over de gewenste rol in de besluitvorming. Ook werden persoonlijke visies geuit ten aanzien van het leren van SB, zoals het belang van werkplekleren. Ten tweede ontdekten we randvoorwaarden voor het toepassen van SB. Deze randvoorwaarden zijn voldoende tijd om SB in consulten te integreren; cognitieve ruimte om te oefenen; vertrouwen in medische kennis en ervaring met de opties; en toegang tot hulpmiddelen (bijvoorbeeld keuzehulpen, keuzekaarten en klinische richtlijnen). Ten slotte werd het belang van didactische vaardigheden van opleiders om SB te coachen benadrukt. Het agenderen van SB tijdens werkplekleren was cruciaal, maar uitdagend, door concurrerende prioriteiten en verschillende verwachtingen tussen aios en opleiders over wie SB op de agenda moet zetten. Ook werd de rol van opleiders als coaches en rolmodellen benadrukt. Opleiders gaven aan dat ze zich bekwaam moeten voelen in SB om aios beter te kunnen begeleiden.

We concludeerden dat dit onderzoek het belang uitlicht van het verbinden van training met werkplekleren voor SB. Longitudinale en geïntegreerde training voor zowel aios als opleiders lijkt veelbelovend om het werkplekleren te bevorderen. Voorwaarden voor het ontwikkelen van SB zijn onder meer motivatie om te leren; voldoende tijd en cognitieve ruimte om te oefenen; voldoende medische kennis en ervaring; en een ondersteunende

leeromgeving waarin opleiders positieve rolmodellen en coaches zijn in SB voor het leerproces van aios.

## **Algemene discussie**

**Hoofdstuk 7** presenteert de algemene discussie van dit proefschrift. Eerst worden de belangrijkste bevindingen van de uitgevoerde onderzoeken samengevat. Vervolgens bespreken we hoe de onderzoeken aansluiten bij het proces van educational design research (EDR), en laten zien hoe de fasen van EDR zijn uitgevoerd. Dit leidde zowel tot theoretisch inzichten als de ontwikkeling van een onderwijsinterventie voor SB, in combinatie met de implementatie en verspreiding van de interventie in de medische vervolgopleiding. Daarna reflecteren we op de rol van professionele identiteitsvorming in het leren van SB door aios, met behulp van Biesta's drie doeldomeinen van onderwijs: 1) kwalificatie; 2) socialisatie; en 3) subjectificatie. Deze domeinen beschrijven de verschillende rollen van het onderwijs in de professionele ontwikkeling. Ook benadrukken deze domeinen dat het niet alleen gaat om het verwerven van competenties, maar ook om de vorming van een individuele professionele identiteit. We concluderen dat hoewel deze doeldomeinen in de leerlijn voor SB aan bod kwamen, er nog ruimte is voor verbetering. Dit kan worden bereikt door meer samen leren door aios en opleiders. Leergesprekken kunnen reflectie stimuleren op de normen, waarden en verwachtingen van het vak en op hoe aios SB in de praktijk willen implementeren. Daarnaast kunnen feedbackgesprekken met patiënten waarin ze reflecteren op hun ervaringen met de besluitvorming in de klinische praktijk bijdragen aan deze professionele identiteitsvorming.

Daarna volgt een reflectie op de methodologische sterktes en zwaktes van de onderzoeksopzet, de betrokken stakeholders en de setting. Deze elementen zijn allen van belang als het gaat om de generaliseerbaarheid van onze bevindingen. Er wordt ook gereflecteerd op de achtergrond van het onderzoeksteam en in het bijzonder op mijn dubbele rol als onderzoeker en aios, omdat dit mogelijk invloed heeft gehad op de bevindingen. Verder geven we praktische aanbevelingen over het gebruik van EDR bij uitdagingen van het ontwikkelen van complexe competenties tijdens werkplekleren in medische opleidingen. We benadrukken dat het betrekken van stakeholders overwogen zou moeten worden om optimaal aan te sluiten bij hun leerbehoeften en ervaringen. We geven ook aanwijzingen voor mogelijke verbeteringen van onderwijsinterventies gericht op SB tijdens de medische vervolgopleiding, voornamelijk door de geformuleerde onderwijskundige ontwerpprincipes. Deze ontwerpprincipes kunnen aan lokale onderwijscontexten worden aangepast en ondersteund worden door een aanvullende verkenning van onderwijsbehoeften.



Vervolgens worden er richtingen voor toekomstig onderzoek naar het leren van SB benoemd, met de focus op vier thema's: 1) de implementatie van de leerlijn voor SB in het reguliere curriculum van medische vervolgoopleidingen; 2) effecten op werkplekleren en toepassing van SB; 3) perspectieven van patiënten en feedback op het leren van SB; en 4) de toepassing van de onderwijskundige ontwerpprincipes in andere gezondheidszorgopleidingen.

We concluderen dat dit proefschrift inzicht geeft in hoe longitudinale training in SB, geïntegreerd in werkplekleren tijdens de medische vervolgoopleiding, aios en hun opleiders kan ondersteunen bij het leren van SB.

Ten slotte reflecteer ik op de persoonlijke impact van het leren van SB vanuit mijn perspectief als aios en hoe het uitvoeren van dit onderzoek mij bewust heeft gemaakt van mijn eigen leerproces.





APPENDICES

Training materials

Dankwoord

About the author

Over de auteur

Academic work



Training materials

The image features a light beige background with abstract white geometric shapes. A large circle is positioned in the upper right, and a quadrilateral is located in the lower left. The text "Training materials" is centered in the upper left area.



For the designed training programme for shared decision making (SDM) described in this dissertation, the following training materials have been developed:

- General training programme guide
- Teacher guides for training sessions
- Lesson plans
- Presentations
- Preparation assignments
- Additional materials: desktool phases of SDM; overview of e-learnings; overview of example sentences for SDM; overview of example sentences for reflection and feedback on SDM; knowledge clips why, how and when to apply SDM

These materials can be found at the following link:







Dankwoord

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**Promotieteam:** Trudy van der Weijden, Esther Girolodi en Angelique Timmerman –  
**Adviesgroep:** Nettie Blankenstein, Ton Drenthen, Geurt Essers, Inge Henselmans, Jean Muris, Arwen Pieterse, Heleen Post, Chris Rietmeijer, Ariëtte Sanders, Anne Stiggelbout, Marjolein van de Pol, Josine van der Kraan en Cees van der Vleuten –  
**Beoordelingscommissie:** Jako Burgers, Marij Hillen, Mariël Jacobs en Pim Teunissen –  
**Paranimfen:** Floor van den Brand en Kirsten Kleijkers-Peetoom –  
**Deelnemers aan de onderzoeken:** expertpanel, opleidingsinstituten, aios, opleiders, docenten en patiënten –  
**(WESP-)studenten:** Sofie de Hoon, Bram Drenthe, Fatma Erkan, Arthur Leferink, Naomi Ploum, Darwin Röhlinger, Emmeline Schmitz, Irma Schoutrop, Jasper van Geel en Bram Vernaas –  
**Collega's vakgroep Huisartsgeneeskunde:** medeaio's en promovendi, kamergenoten, secretariaat en onderzoeksmedewerkers –  
**Huisartsopleiding Maastricht:** medeaio's, docenten en medewerkers –  
**Opleiders, collega's en patiënten stageplekken:** in het bijzonder Huisartsenpraktijk de Poort, afdeling Richtlijnontwikkeling en Wetenschap Nederlands Huisartsen Genootschap en Huisartsen Hartje Dorp –  
**Vrienden, schoonfamilie en familie, Marcel en Lot.**

Mijn dank gaat uit naar iedereen die heeft bijgedragen aan mijn opleiding tot huisarts en onderzoeker. Tijdens dit aioto-traject kreeg ik de kans om promotieonderzoek te combineren met de huisartsopleiding. Ik kijk met trots terug op deze periode, waarin ik mezelf heb ontwikkeld als jonge arts en onderzoeker, en waarin ik patiënt, partner en moeder werd. Dit proefschrift had ik dan ook niet kunnen schrijven zonder de hulp van alle betrokkenen bij mijn onderzoek, de huisartsopleiding en mijn thuisfront. Jullie steun, geduld en vertrouwen hebben dit alles mogelijk gemaakt. Daarvoor ben ik jullie ontzettend dankbaar.

**Anouk**

A



About the author

The background is a solid light beige color. It features a large, thin white circle that is partially cut off by the edges of the page. Overlapping the bottom-left portion of the circle is a white-outlined rectangle that is tilted clockwise. The text 'About the author' is positioned in the upper-left area of the page, within the circle's boundary.



Anouk Baghus was born in Echt, the Netherlands, on August 1st, 1990. In 2008, she completed pre-university education (cum laude) at Connect College in Echt. She studied Medicine at Maastricht University. During her studies, she developed a particular interest in research and Primary Care. She worked as a student assistant at the department of Rehabilitation Medicine and was involved in organising the Maastricht Medical Students Research Conference. During a gap year, she volunteered in South Africa to develop health education programmes. In the final year of her master's programme, she completed her scientific internship at the department of Family Medicine (supervised by Trudy van der Weijden). After graduating in 2015, she worked as a resident (not in training) in Elderly Care at Proteion.



In 2016, Anouk started her PhD project at the department of Family Medicine, Care and Public Health Research Institute (CAPHRI) at Maastricht University (supervised by Trudy van der Weijden, Angelique Timmerman and Esther Girolidi). Her PhD research focused on learning shared decision making in postgraduate medical education. She presented her work at several national and international conferences, symposia and meetings. During her PhD project, Anouk was also involved in teaching and supervising medical students. She was a member of the scientific committee of the international WONCA-Europe conference, the national committee for 'education & training in shared decision making' for the programme Uitkomstgerichte Zorg for the Ministry of Health, Welfare and Sports, and the guest editorial board for a theme issue on doctor-patient communication for *Huisarts & Wetenschap*. She combined research with postgraduate training in general practice in Huisartsenpraktijk de Poort in Maastricht (supervised by Katrien Verstraete) and Huisartsen Hartje Dorp in Munstergeleen (supervised by Roel Smeijsters and Joost Hartgers). During her postgraduate training, she also completed an elective placement at the department of Guideline Development and Science of the Dutch College of General Practitioners (NHG) (supervised by Gerda van der Weele).

Since finishing her postgraduate training and PhD project in October 2024, Anouk has been working as a general practitioner at Huisartsen Hartje Dorp in Munstergeleen and as an Assistant Professor at the department of Family Medicine at Maastricht University.





Over de auteur



Anouk Baghus werd geboren in Echt, Nederland, op 1 augustus 1990. In 2008 behaalde zij haar VWO-diploma (cum laude) aan Connect College in Echt. Ze studeerde geneeskunde aan de Universiteit Maastricht. Tijdens haar studie ontwikkelde ze een interesse voor onderzoek en de eerstelijnszorg. Ze werkte als student-assistent bij de afdeling revalidatiegeneeskunde en was betrokken bij de organisatie van het Maastricht Medical Students Research Conference. Tijdens een tussenjaar deed ze vrijwilligerswerk in Zuid-Afrika, waar ze gezondheidsvoorlichtingsprogramma's ontwikkelde. In het laatste jaar van haar masteropleiding voltooide ze haar wetenschappelijke stage bij de vakgroep Huisartsgeneeskunde (onder begeleiding van Trudy van der Weijden). Na haar afstuderen in 2015 werkte ze als basisarts in de ouderenzorg bij Proteion.



In 2016 begon Anouk aan haar promotieonderzoek bij de vakgroep Huisartsgeneeskunde, Care and Public Health Research Institute (CAPHRI) aan de Universiteit Maastricht (onder begeleiding van Trudy van der Weijden, Angelique Timmerman en Esther Giroldi). Haar promotieonderzoek richtte zich op het leren van samen beslissen in de vervolgopleiding voor artsen. Ze presenteerde haar werk op diverse nationale en internationale congressen, symposia en bijeenkomsten. Ze was lid van de wetenschappelijke commissie van het internationale WONCA-Europe congres, de landelijke commissie 'scholing & opleiding samen beslissen' voor het programma Uitkomstgerichte Zorg van het Ministerie van Volksgezondheid, Welzijn en Sport, en de gastredactie van een themanummer over arts-patiëntcommunicatie van Huisarts & Wetenschap. Ze combineerde onderzoek met de huisartsopleiding in Huisartsenpraktijk de Poort in Maastricht (onder begeleiding van Katrien Verstraete) en Huisartsen Hartje Dorp in Munstergeleen (onder begeleiding van Roel Smeijsters en Joost Hartgers). Tijdens haar huisartsopleiding voltooide ze ook een keuzestage bij de afdeling Richtlijnontwikkeling en Wetenschap van het Nederlands Huisartsen Genootschap (NHG) (onder begeleiding van Gerda van der Weele).

Sinds het afronden van haar huisartsopleiding en promotieonderzoek in oktober 2024 werkt Anouk als huisarts bij Huisartsen Hartje Dorp in Munstergeleen en als universitair docent bij de vakgroep Huisartsgeneeskunde aan de Universiteit Maastricht.



Academic work

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### **Publications presented in this dissertation**

Baghus A, Giroldi E, Muris J, Stiggelbout A, van de Pol M, Timmerman A, van der Weijden T. Identifying Entrustable Professional Activities for Shared Decision Making in Postgraduate Medical Education: A National Delphi Study. *Acad Med.* 2021 Jan 1;96(1):126-133. DOI: 10.1097/ACM.0000000000003618.

Baghus A, Giroldi E, Timmerman A, Schmitz E, Erkan F, Röhlinger D, Pieterse A, Dielissen P, Kramer A, Rietmeijer C, Muris J, van der Weijden T. Identifying residents' educational needs to optimizing postgraduate medical education about shared decision-making. *Patient Educ Couns.* 2022 Oct;105(10):3086-3095. DOI: 10.1016/j.pec.2022.06.016.

Baghus A, Giroldi E, van Geel J, Leferink A, van de Pol M, Dielissen P, Sanders A, Bisschop I, Pieterse A, Muris J, Timmerman A, van der Weijden T. Shared decision-making performance of general practice residents: an observational study combining observer, resident, and patient perspectives. *Fam Pract.* 2024;41(1):50-59. DOI: 10.1093/fampra/cmadv125.

### **Submitted manuscripts presented in this dissertation**

Baghus A, Giroldi E, Rietmeijer C, Essers G, Pieterse A, Blankenstein N, Muris J, van der Weijden T, Timmerman A. Designing longitudinal training for shared decision making in postgraduate medical education: using an educational design research approach.

Baghus A, Giroldi E, Ploum N, Pieterse A, Essers G, Blankenstein N, Muris J, van der Weijden T, Timmerman A. How does a longitudinal and integrated shared decision-making training programme foster clinical workplace learning?

### **Publications outside of this dissertation**

Baghus A. Onderzoek naar optimale aios-training Shared Decision Making. *Huisarts en Wetenschap.* 2017;60(11):593.

Baghus A, Timmerman A, Giroldi E, Henselmans I, Muris J, van der Weijden T. Tips voor aiossen en opleiders over Leren van Samen Beslissen. *Huisarts en Wetenschap.* 2021;64(7):25-28. DOI: 10.1007/s12445-021-1174-3.

van der Weele G, Baghus A. Welke rol spelen keuzekaarten bij samen beslissen? *Huisarts Wet.* 2022;65(12):10-3. DOI: 10.1007/s12445-022-2103-9.

Baghus A, Timmerman A, Giroldi E, van der Kraan J, van der Weele G, van der Weijden T. Hoe gebruik je keuzekaarten en keuzehulpen in de spreekkamer? *Huisarts Wet.* 2022;65(12):36-9. DOI: 10.1007/s12445-022-2108-4.

Baghus A. Ouderdomswrat/verruca seborrhoeica. Kleine Kwalen in de huisartsenpraktijk Houten: Bohn Stafleu van Loghum; 2024. 160-163.

Baghus A, Timmerman A, Giroldi E, van der Weijden T. Maatwerk zorgverlener en patiënt: Samen Beslissen. TvPO. 2024 March; 19(2):37-39. DOI: 10.1007/s12503-024-2026-y.

Pieterse A, Bolt E, Baghus A, Krausz S. Samen beslissen vergt een nieuwsgierige, bescheiden en flexibele houding van artsen. Huisarts Wet. 2024;67(6):26-29. DOI: 10.1007/s12445-024-2817-y.

Richter R, Damman O, Jansen J, Baghus A, Fransen M, van der Weijden T. Risicocommunicatie in het kader van samen beslissen. Huisarts Wet. 2024;67(6):33-36. DOI: 10.1007/s12445-024-2832-z.

### **Presentations and workshops relevant to this dissertation**

- 2024: 'Fasen van samen beslissen.' Workshop during local training days for supervisors in general practice specialty training Maastricht University, November 5 and 7, 2024. Urmond, the Netherlands.
- 2024: 'Samen beslissen in 4 stappen.' Invited workshop during training on urinary tract infections for healthcare professionals, October 8, 2024. Maastricht, the Netherlands.
- 2024: 'Samen beslissen in de huisartsopleiding. De ontwikkeling van een leerlijn samen beslissen als voorbeeld voor educational design research.' Oral presentation exchange day with shared decision-making researchers from Maastricht University and Leuven University, October 2, 2024. Maastricht, the Netherlands.
- 2024: 'Het ontwikkelen van een leerlijn samen beslissen voor de huisartsopleiding: wat hebben we geleerd?' Oral presentation Dutch Association of Medical Education (NVMO) conference, May 16-17, 2024. Egmond, the Netherlands.
- 2023: 'How to develop a longitudinal curriculum for workplace learning.' Oral presentation research line promoting health & personalised care, CAPHRI, February 10, 2023. Maastricht, the Netherlands.
- 2022: 'Designing a longitudinal curriculum in shared decision-making for workplace-based learning.' Workshop International Shared Decision Making (ISDM) conference, June 19-22, 2022. Kolding, Denmark.
- 2022: 'Ontwikkeling van een leerlijn samen beslissen.' Oral presentation exchange day with shared decision-making researchers from Maastricht University and Leuven University, April 21, 2022. Leuven, Belgium.
- 2022: 'Samen beslissen in de spreekkamer... hoe leer je dat?' Workshop theme session Dutch Association of Medical Education (NVMO). January 19, 2022. Online.



- 2021: 'Onderwijs in Samen Beslissen tijdens de huisartsopleiding.' Oral presentation lunch meeting department of Family Medicine, November 18, 2021. Online.
- 2021: 'A systematic approach to identify and prioritize option tables for recommendations in NHG-guidelines.' Oral presentation World Organisation of National Colleges, Academies and Academic associations of General Practitioners/ Family Physicians (WONCA) conference, July 6-10, 2021. Online.
- 2020: 'Samen Beslissen in de Huisartsopleiding.' Oral presentation national doctor-patient communication platform, October 30, 2020. Online.
- 2019: 'Family medicine residents' experienced barriers and facilitators in learning and applying shared decision-making in workplace-based learning.' Poster presentation European Association of Communication in Healthcare (EACH) Forum, September 16-18, 2019. Leiden, the Netherlands.
- 2019: 'Family medicine residents' experienced barriers and facilitators in learning and applying shared decision-making: a qualitative study.' Oral presentation International Shared Decision Making (ISDM) conference, July 7-10, 2019. Quebec, Canada.
- 2018: 'Ontwikkelen van onderwijs in Samen Beslissen voor de Huisartsopleiding.' Workshop national doctor-patient communication platform, June 22, 2018. Amsterdam, the Netherlands.
- 2018: 'Towards effective Shared Decision Making: how to stimulate workplace-based learning and feedback.' Workshop Conference on Communication in Healthcare (ICCH), September 1-4, 2018. Porto, Portugal
- 2017: 'Samen Beslissen in de huisartsopleiding: op weg naar een effectieve training.' Oral presentation lunch meeting department of Family Medicine, November 30, 2017. Maastricht, the Netherlands.
- 2017: 'When and how to train GP trainees in Shared Decision Making.' Poster presentation grant programme Huisartsgeneeskunde Ouderengeneeskunde (HGOG), November 27, 2017. Utrecht, the Netherlands.
- 2017: 'The development of competencies for Shared Decision Making in postgraduate medical education: a Delphi study.' Oral presentation International Shared Decision Making (ISDM) conference, July 2-5, 2017. Lyon, France.
- 2017: 'Samen Beslissen: een effectief trainingsmodel.' Invited workshop Medische Vervolgopleidingen (MMV) conference, December 13, 2017. Nieuwegein, the Netherlands.
- 2016: 'Samen Beslissen in de Huisartsopleiding.' Oral presentation national doctor-patient communication platform, December 2, 2016. Amsterdam, the Netherlands.
- 2016: 'Delphi-studie naar competenties voor Samen Beslissen.' Poster presentation national platform shared decision making, November 3, 2016. Zwolle, the Netherlands.

- 2016: ‘When and how to train GP trainees in Shared Decision Making.’ Poster presentation grant programme Huisartsgeneeskunde Ouderengeneeskunde (HGOG), October 11, 2016. Utrecht, the Netherlands.

### **Awards**

- 2022: Nomination for the Dutch College of General Practitioners Science Award 2022.
- 2021: Award for top 20 abstract World Organisation of National Colleges, Academies and Academic associations of General Practitioners/Family Physicians (WONCA) Europe conference 2021.

### **Media exposure**

- 2023: Interview online care platform Qruux, about training shared decision making in general practice.
- 2022: Huisarts Podcast, podcast interview by Femke Veldhuizen about how to use decision aids in general practice.
- 2021: Interviewreeks Onderzoek van Onderwijs ZonMw, interview by Veronique Huijbregts about the development of a training programme on shared decision making for postgraduate medical education.

### **Other**

- 2023-2024: Editorial board for theme issue ‘communication’, Huisarts en Wetenschap.
- 2022-2023: Member national committee ‘education & training in shared decision making’, programme uitkomstgerichte zorg, Ministry of Health, Welfare and Sports.
- 2018-2021: Member of the scientific committee of the international World Organisation of National Colleges, Academies and Academic associations of General Practitioners/Family Physicians (WONCA) Europe conference, Practicing Person Centred Care, 2021.
- 2021: Representative of general practice residents during visitation of the registration committee medical specialties (RGS).
- 2017-2023: Resident member of the selection committee for general practice postgraduate training, Maastricht University.





