Role modeling in clinical practice: A whirlpool around master and apprentice in lifestyle interventions for obesity in general practice
van der Leeuw, Ria

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Role Modeling in Clinical Practice

A Whirlpool around Master and Apprentice in Lifestyle Interventions for Obesity in General Practice

Ria Jochemsen - van der Leeuw

To my parents
Role Modeling in Clinical Practice

A Whirlpool around Master and Apprentice in Lifestyle Interventions for Obesity in General Practice

ACADEMISCH PROEFSCHRIFT

ter verkrijging van de graad van doctor aan de Universiteit van Amsterdam op gezag van de Rector Magnificus prof. dr. D.C. van den Boom ten overstaan van een door het college voor promoties ingestelde commissie, in het openbaar te verdedigen in de Aula der Universiteit op vrijdag 3 oktober 2014, te 13:00 uur

door

Hendrika Gerardina Adriana van der Leeuw

geboren te Velsen
Promotiecommissie

Promotor: Prof. dr. M. Wieringa-de Waard

Co-promotor: Dr. N. van Dijk

Overige leden: Prof. dr. J.J. van Binsbergen
Dr. A.H. Blankenstein
Prof. dr. E.M.H. Mathus-Vliegen
Dr. C.T. Postma
Prof. dr. J.H. Ravesloot
Prof. dr. S.E.J.A. de Rooij

Faculteit der Geneeskunde
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Chapter 1

General Introduction
General Introduction

In order to become a professional capable of treating patients, a trainee physician receives guidance from a master physician in a master-apprentice relationship, a practice that has existed since the fifteenth century.\(^1\) This clinical trainer functions as a role model for the trainee, that is, as “a person considered as a standard of excellence to be imitated.”\(^2\) Although educational methods have changed over time, role modeling remains an important component of professional development. Role modeling in medical education is especially important in helping the trainee with the transition from student to colleague, facilitating the trainee to establish a professional identity\(^3\) and to work in accordance with all written, and especially all unwritten, rules, regulations, and customs.\(^4\) This thesis provides insight into the role modeling of clinical trainers in general and of general practitioner (GP) trainers, in particular regarding the treatment of obesity.

Theoretical background

Irby (1986) described role modeling as a powerful teaching technique and the primary teaching strategy of clinical education.\(^5\) Irby’s description helped us understand how trainees become professionally competent.

To make effective observational learning accessible, Bandura (1989) developed his social cognitive theory and described the four steps that are involved in the observational and modeling process from observing a role model to using that observation as a guide for action:

- Attention: Attentiveness to what has been modeled.
- Retention: The ability to store information.
- Reproduction: Imitating the behavior that has been modeled.
- Motivation: Becoming motivated, in which reinforcement plays an important role.

This process is reciprocally influenced by environmental, behavioral, and personal factors\(^6\) (Figure 1). Bandura’s theory provided us with a basic model on the role modeling process to further build on, using our results.
Ernaut (2000) analyzed informal learning in the workplace. This is important, because working alongside others allows people to observe and listen to others, and to gain some sense of other people's tacit knowledge. Ernaut explained to us how workplace learning leads to professional development.  

More recently, Stegeman and colleagues (2012) distinguished between theoretical and practical knowledge. Trainees acquire the latter – that is, “professional knowledge and competence” – by observing their trainers as models, followed by a personal interaction between master and apprentice. These scholars argue that one should view clinical workplace learning as an interactive master-apprenticeship model that encompasses modeling and feedback as natural educational routes. This is not a static but an ongoing interaction between trainers and trainees, because there is doubt that there is a homogenous set of values, norms, and behaviors within the medical profession. The results of Stegeman’s study allowed us to better analyze the ways in which “phronesis” (practical wisdom) is conveyed from role model to trainee.

**Local context**

In order to work independently as a GP in the Netherlands, a physician must complete three years of specialty training at one of the country’s eight institutes for GP specialty training. During the first and the third year of this training, each trainee spends three or four days a week working at a GP practice, where he or she is supervised by at least one GP (the clinical trainer). In their second year, trainees work in a variety of clinical settings. Throughout the specialty training, they spend one day a week following the education program at one of the institutes for GP specialty training. The program is taught by GPs and behavioral scientists (all of whom are referred to as ‘teachers’, not to be confused with trainers).
Each year, the clinical trainers attend eight teach-the-trainer days at the same institute as the trainee, in the expectation that these educational interventions of Continuing Professional Development (CPD) and/or Faculty Development (FD) will improve the quality of the trainees’ training in clinical practice.

Although previous studies\(^8-10\) have led to agreement on the importance of training the clinical trainers as teachers, it is not known whether training them as role models will be effective.

A CPD combined with an FD subject can be effective, however, according to the self-evaluation of the trainers after earlier interventions.\(^{11-14}\) Because a combined intervention takes into account the already known barriers that GPs face, such as the limited time available and the need to update medical knowledge,\(^{11,12,14}\) we chose a field of medicine in which professionals encounter difficulties in acquiring the correct competences – namely the treatment of obesity\(^{15}\) – to convey the FD subject, that is, role modeling.\(^1-7\)

**Obesity**

Overweight (or ‘pre-obesity’) and obesity in clinical practice are assessed by the Body Mass Index (BMI), which is calculated as body weight (kg) divided by height squared (m\(^2\)). Overweight is defined as a BMI of between 25 and 29.9 kg/m\(^2\), and obesity as a BMI of \(\geq 30\) kg/m\(^2\).\(^{16}\) Overweight and obesity are associated with serious health problems predisposing to cardiovascular diseases, diabetes mellitus type 2, certain cancers, musculoskeletal disorders, sleep apnea, and reproductive and psychological health problems.\(^{16}\) In the Netherlands in 2012, overweight prevalence in adults (\(\geq 19\) years) was 53.0% for males and 43.7% for females, and obesity prevalence was 11.3% for males and 13.9% for females.\(^{17}\) Over the previous four years, the increase had been flattening. The overweight prevalence in children and young people (2-21 years) continued to rise and reached 14% in 2010.\(^{18}\) A recently published study in the Netherlands showed a stabilization of the prevalence of overweight and obese children, but the numbers vary in children of different origin.\(^{19}\)

According to several studies,\(^{16,20,22}\) GPs are in the best position to treat obesity because of the easy access they have to and for their patients and because of the continuity of their contacts. Patients perceive GPs as a reliable source of weight management information,\(^{21}\) and 68% of patients agree with the statement that GPs can give unsolicited advice about their overweight.\(^{22}\)
GPs, however, face multiple barriers in providing obesity treatment, for example a lack of time, a lack of evidence-based treatment, a lack of treatment skills to address their obese patients, and the perceived lack of patients’ motivation.20,23 The personal characteristics of GPs – such as their age and their BMI (or change therein) – also appear to be related to their weight management policy.23,24 GPs who have a healthy BMI and therefore act as positive role models for their patients, will more frequently diagnose and treat obese patients23 and have more credibility among their patients.24

Guidelines25,26 have been developed to support GPs in executing their task of treating overweight and obese patients. Furthermore, a new intervention strategy has been introduced to break down some of the barriers. This program – the Minimal Intervention Strategy for Obesity (MISO)15 – is based on an evidence-based model for obesity care in primary care (the Counterweight Programme27) and short evidence-based interventions to help patients stop smoking, and uses patient educational materials.28 Because the MISO can be used during normal GP consultations,15 we chose to use it for our educational intervention.

Aim of the research

The objective of the research reported in this thesis was to gain insight into 1) the influence of the clinical trainer as a role model for the trainee, and 2) methods to improve this role model function, especially in relation to the treatment of overweight and obese patients. We therefore set out to:

• Study what influences the trainee to become competent in providing lifestyle interventions for overweight and obese patients.
• Analyze how the clinical trainer, as a role model for the trainee, influences this process.
• Explore how to improve role modeling in clinical practice, in order to optimize the growth of trainees into their future role as independent and competent professionals who are capable of providing high-quality patient care.
• Evaluate the effectiveness of an educational intervention (combined CPD/FD courses) to improve the role model behavior of the trainer.
• Investigate whether this process can be effected by providing feedback on the role model behavior of the trainer.
Outline of the thesis

Chapter 2 Because there is a growing epidemic of obesity despite an increase in attention to and guidelines on reducing the problem, we focused on the trainees to study how the barriers and attitudes of the GP toward weight management arise. In our first study, we explored the factors influencing the willingness and ability of GP trainees to provide lifestyle interventions for overweight and obese patients by using focus groups with trainees and trainers.

Chapter 3 Building on the results of our first study, we assessed the influence of the clinical trainer as a role model on the trainee and, if possible, to find a way to improve the role model behavior of the clinical trainer. We therefore reviewed the literature to identify the attributes characterizing clinical trainers as role models for the trainees.

Chapter 4 We used the attributes identified in the literature review to develop and validate a tool to assess the role model behavior of the clinical trainer. Using the ability to evaluate the clinical trainer as a role model, we tried to improve the trainer’s role model behavior in two ways: by training (Chapter 5) and by using feedback (Chapter 7).

Chapter 5 We first tried to improve the role model behavior in lifestyle counseling for obesity by using an educational intervention: a combined CPD/FD course. For the CPD part of the course, we chose the subject of a new method of treating obesity in clinical practice. For the FD part, we chose the subject of conveying this new knowledge and an appropriate attitude to the trainee. After the CPD/FD course, we evaluated its effectiveness.

Chapter 6 Because of the relatively negative results of the intervention described in Chapter 5, we conducted a qualitative study. We used semi-structured interviews with GP trainers and their trainees to gain insight into the factors that influence the conveyance of the new competences that were acquired in the CPD/FD course, from master to apprentice in the clinical training practice.

Chapter 7 Finally, we tried to improve the role model behavior of the clinical trainer by means of personal feedback on their scores as provided by their trainees, and for reference compared these scores to those of the trainer’s peers.
Chapter 8  In this final chapter, we use the results of the previous chapters to give an outline for the further implementation of the assessment tool for role model behavior. We also explain how to use the “whirlpool” around the master-apprentice relationship to improve future conveyance in the clinical training practice. Finally, we give two recommendations: One for future research – namely to develop a gold standard – and one for future education, that is, to develop a “masterpiece” for the trainee in becoming aware, as a GP, of being a role model for patients, peers, and students.
References


24. Bleich S, Bennett WL, Gudzune KA, Cooper LA. Impact of Physician BMI on Obesity Care and Beliefs. Obesity 2012;20:999-1005.


Chapter 2

Attitudes towards obesity treatment in GP training practices: A focus group study

Ria Jochemsen-van der Leeuw
Nynke van Dijk
Margreet Wieringa-de Waard

Family Practice 2011;28(4):422-429
Abstract

Background  Both patients and government expect the General Practitioner (GP) to treat obesity. Previous studies reported a negative attitude of GPs towards this task. Little is known about the attitude of GP trainees.

Purpose  To assess the attitude and other factors that influence the willingness and ability of GP trainees to provide lifestyle interventions for overweight patients.

Method  A qualitative study was performed using focus groups, consisting of first- and third-year trainees, GP trainers and teachers. Two researchers analysed the data independently.

Results  First-year trainees lack knowledge and a positive attitude. Third-year trainees, although trained in motivational interviewing techniques, lack specific knowledge and feel cheated when discussing eating habits. Trainers are despondent as they rarely observe long-lasting results. Teachers warn the trainees not to have high hopes. The trainers and trainees fear ruining the relationship with their patient, and all make a request for evidence-based multidisciplinary treatment programmes, joint responsibility and an image change in society to stop the epidemic.

Conclusions  Trainees do not feel more competent in treating overweight patients successfully over the course of their GP specialty training and GP trainers are not convinced of the success of the treatment of overweight patients. Therefore it could be equally important to reflect on the GP trainer as a role model as to concentrate on the education of the trainee. Both need a revived attitude and evidence-based treatment programmes, help from policy makers and an attitude change in society are desired.
Introduction

In the Netherlands, as in many other countries, overweight [Body Mass Index (BMI) 25-30 kg/m²] and obesity [BMI > 30 kg/m²] are becoming an epidemic.¹,² This epidemic is a challenge to public health and requires medical interventions, individual behavior modifications and environmental changes.²

The multiple guidelines on the management of overweight and obese patients that are available in the international literature (NHLBI,³ NICE⁴ and CMAJ⁵) merely state that ‘there is limited evidence on the effectiveness of interventions based in non-clinical settings to manage obesity in adults’ (NICE⁶) and rarely contain evidence-based practical tools to reach the stated goals in the Dutch General Practitioner (GP) setting. No practical guideline regarding the treatment of obesity for GPs is available in the Netherlands. Treatment options depend on local circumstances and initiatives from insurance companies. The guidelines on cardiovascular risk management and diabetes⁶ of the Dutch Society of General Practitioners advise GPs to promote a healthy lifestyle and weight loss for their patients when necessary but do not provide a programme to help implement these recommendations. A multidisciplinary guideline of the Dutch Institute for Health Care Improvement (CBO)⁷ for treating obesity provides evidence-based recommendations but does not explain how to incorporate these recommendations into the daily practice of GPs. There is as yet no translation of this multidisciplinary guideline into a specific guideline for GPs⁸ in the Netherlands as there is in Australia⁹ and Belgium.¹⁰ For a successful implementation, a guideline needs to be concrete, precise, easily accessible¹¹,¹² and specifically aimed at the Dutch GP.

Dutch patients who are overweight do however consider their GP to be the best source of information about healthy weight loss.¹³ The majority of GPs agrees that giving advice about healthy eating should be part of their daily routine, especially when the patient is overweight.¹³ Yet factors such as lack of knowledge and time, doubts about their patients’ motivation to change their eating habits and difficulties in talking to their patients about their weight keep them from executing this task.¹³,¹⁵
If we want to combat the increasing obesity rates, we will have to develop strategies to break down the GP's barriers to weight management and to stimulate changes in the GP's attitude. Studies show that strategies to promote change in clinical practice are more likely to be successful if they are based on a content-specific analysis of barriers and facilitators. Another strategy would be to prevent these barriers and negative attitudes from coming into existence by focussing on GP trainees. The current practice of weight management and the attitudes and possible barriers of GP trainees towards the treatment of overweight and obesity is unknown. Such information could help educators in the further curriculum development.

**Objectives**
The aim of this study is to assess the attitude, barriers and other factors that influence the willingness and ability of GP trainees to provide lifestyle interventions for overweight and obese patients.

**Method**

**Context**
The Dutch 3-year GP specialty training is based on the CanMEDS model. In the first and third year, the trainees work 4 days a week in the medical practice of a GP trainer who supervises them and assesses their skills at the end of the training period. One day a week trainees attend a central curriculum at one of the eight educational institutes throughout the country, where they are taught by GPs and behavioral scientists (both called ‘teachers’).

This study took place at the institute for GP specialty training of the Academic Medical Center, University of Amsterdam. The institute is located in a multicultural community outside the old city; training practices are located throughout the north-western part of the Netherlands. In the central curriculum, the only focus on advising weight loss is part of the treatment of chronic diseases. Furthermore, trainees learn motivational interviewing techniques and they can choose an optional elective on obesity.

Three researchers are assigned to this institute: a GP/head research department (MWW), a physician/research coach (NvD) and a GP trainer/teacher (HGAJL). None of them are involved in the training of the GP trainees who participated.
in this study. HGAJL has a special interest in the management of patients with overweight and obesity.

**Sampling**
Four focus groups consisting of first- and third-year GP trainees, GP trainers and teachers, facilitated by the same moderator (NvD) and observed by the same researcher (HGAJL), were conducted in 2008. By using these four groups, we hoped to obtain a comprehensive view of the barriers and attitude of GP trainees (triangulation). In order to obtain a secure environment for discussion, first- and third-year trainees, trainers and teachers participated in different groups. Participants were invited for each group, using purposive sampling. Nine subjects per group were invited, by selecting every third name on an alphabetic list of the four target groups, while making sure that the sample consisted of subjects with a different gender, age, clinical experience and ethnic background. If an invitation was refused the next person on the list was invited.

All participants received written information on the study, including a clear statement that participation was voluntary and the results of the study would be used and analysed anonymously. This information was repeated at the start of the session. Verbal consent of each participant was recorded on tape. The study was approved by the head of the institute.

**Data collection**
The 45-minute focus group sessions\(^{18}\) were introduced with the following questions based on an analysis of the published literature:\(^{19-30}\) ‘because of their long-lasting contact with patients, GPs have the opportunity to screen for, recognize and treat patients with obesity. How do you feel about this?’ And ‘Do you think that this is the responsibility of the GP?’ These questions were followed, if necessary, by questions on the attitude of the GP towards obesity, interventions during consultations, barriers to discuss the diagnosis of obesity and the need for tools and education. Also, the difference between a protocol to help patients quit smoking using a minimal intervention strategy (MIS) and a protocol to help patients lose weight was discussed.

**Data analysis**
All sessions were audiotaped and verbatim transcribed. The descriptions of discussions and the notes of the observer were used for analysis.
Two researchers (NvD, HGAJL) analysed the text independently by placing the statements into categories based on the introductory questions. After comparison of the results, differences were discussed and a consensus was reached. Based on the discussion, three categories were added: ethnicity, children and the GP trainer as role model. Categories were divided into positive and negative statements. During the second round of analysis, a check was performed to ensure that all statements fitted one of the categories and all positive and negative statements were recognized. The final formulation of the results and the selection of representative statements were decided upon after consensus between the two researchers.

Results

Focus group characteristics are shown in Table 1. All trainees were of Western European descent. The training practices were situated in Amsterdam (3), newly built cities (3), medium-sized old cities (4) and villages (3).

Table 1

<table>
<thead>
<tr>
<th>Focus groups</th>
<th>Number of participants</th>
<th>Male</th>
<th>Female</th>
<th>Age</th>
<th>Years in practice</th>
<th>Years as GP trainer</th>
</tr>
</thead>
<tbody>
<tr>
<td>First-year trainees</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>29-35</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Third-years trainees</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>32-36</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>GP trainers</td>
<td>5</td>
<td>2</td>
<td>3</td>
<td>5-29</td>
<td></td>
<td>1-9</td>
</tr>
<tr>
<td>Teachers</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis resulted in a comprehensive list of barriers and facilitators for overweight and obesity treatment (Table 2) and showed specific differences and similarities between the groups. This information is described below per identified category.
### Table 2
Factors influencing the GP-trainees, their teachers and trainers in their willingness and ability for treatment of overweight and obesity.

<table>
<thead>
<tr>
<th>Responsibility of the GP</th>
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<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>To make patients aware, look for causes and treat in case of complaints and high cardiovascular risk</td>
<td>Not to screen or to treat every patient</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitude towards patients being overweight</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>To see it as a disease, an addiction, a risk factor, a shortage of knowledge</td>
<td>To have feelings of incomprehension, disbelief, astonishment, helplessness, discouragement, disappointment by missing long-lasting treatment results</td>
</tr>
<tr>
<td>To notice patients are ashamed, don’t do it on purpose and children are not to blame</td>
<td>To blame the patients that they don’t want to take responsibility or action, To blame society to let it come this far.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intervention of GPs with overweight patients</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Negative</td>
</tr>
<tr>
<td>To take action, always because of the long-lasting relationship, when there is an opening to speak about is, when there are tools developed, using motivational interviewing techniques, using humour</td>
<td>Not when there is no medical reason or patient is coming in for different reasons or they want everybody else to do something about it</td>
</tr>
<tr>
<td>To refer to dietician, popular diet, physiotherapist, nurse practitioner, psychologist, Youth Care organisation, supervised sporting facility, special paid for multidisciplinary programme close to the patient’s own home, special clinic, surgical procedure</td>
<td>Not because of having: -fear of offending or losing the patient -no knowledge of possibilities or nothing to offer the patient -no evidence-based or long-lasting results of treatment -no easy to follow (national) programme as a result of the money going to the wrong people for what is becoming a booming business</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Barriers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive (motivating factors)</td>
<td>Negative</td>
</tr>
<tr>
<td>To have access to -enough budget and time -good evidence-based programme, easy to follow with no financial barrier -the possibility of allowing the whole family to participate -more anonymous possibilities like sending a letter to every patient inviting them for screening, handing out a leaflet with self-help programme</td>
<td>Not every overweight patient visits the GP, has related complaints, has a cause to address, comes in on the right moment, has knowledge about the risks, wants to get out of the passive role of having an illness, will come back</td>
</tr>
<tr>
<td>To have -change of image formation in society -healthy food available for low prices -more rules and information about risks by the government</td>
<td>To have: -no acceptance in society to address people about their weight -cheap junk food available everywhere all the time -not enough government regulations -no programmes for screening -no access to a special programme or clinic at short notice -no possibilities to establish permanent lifestyle changes</td>
</tr>
</tbody>
</table>
## Chapter 2

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
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</thead>
<tbody>
<tr>
<td>To have more possibilities to refer patients to sponsored programmes</td>
<td>To notice that eating a lot of candy is frequent, being big is considered beautiful and healthy, women are often not allowed to go outside or do sports, confirming a child's overweight being an illness is more appreciated by the parents</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
</table>
| To address them, also because of the greater health risk, and to refer them to special programmes, is easier | Not visiting the GP  
Not enough special knowledge  
No evidence of special programmes to work  
Not enough sporting facilities, also in the schools, instead money is going to treatment for a selected group |
| To notice that parents need support, it is more a problem of changing lifestyle of children as a group and the Youth Health Organisation can help. | To have to address the parents, parents who don't have the time to prepare proper food because of work.  
To have the risk of stigmatising or traumatising the child, making the child prone to teasing |

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
</table>
| To have a tool, an instrument, an intervention strategy, a way of motivational interviewing, a valuable extension, also for the nurse practitioner, that is not dictating and still possible to use if everything else fails, not to feel desperate anymore. | No solution because  
-the patient has to choose,  
-it is more a safety net,  
-it helps only a small percentage,  
-the need for a long-term solution,  
-it doesn’t change anything.  
Not expecting too much, not overestimating |

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>To see it as a risk factor, an addiction</td>
<td>To notice there is more evidence for smoking as a risk factor, that smoking is more a choice while becoming overweight just happens, that the use of a MIS makes it easier to stop smoking.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td>To use the smoking cessation protocol for people with overweight</td>
<td>To see that social regulations against smoking (not yet for obesity) are successful, To stop smoking or to lose weight, for both a patient needs to be motivated</td>
</tr>
<tr>
<td>To address smokers is easier than overweight patients</td>
<td></td>
</tr>
<tr>
<td>To get help from nurse practitioners for smoking cessation and losing weight</td>
<td></td>
</tr>
</tbody>
</table>
Responsibility
First-year trainees consider it their responsibility to offer weight treatment to patients suffering from weight-related diseases. Third-year trainees think it can already be effective to make every overweight person aware of their weight problem. Trainers want to identify the patients' causes of being overweight, motivate them to lose weight and provide them with treatment options. All groups consider prevention and advice on how to live healthily a responsibility of the government, schools and youth health organizations. In addition, patients have a responsibility for their own health.

"Is this our responsibility? I rather see it as a task for the entire community to pay more attention to this problem and to stop portraying slim people as role models." (Third-year trainee)

Attitude
The first-year trainees feel that patients think something other than themselves is causing their weight problem and that patients will not or cannot do anything about it. This gives the trainees a sense of defeat.

"I experienced negative emotions. I thought: why are you doing this to yourself?" (First-year trainee)

Third-year trainees especially feel pity for obese children.

"How is it possible that parents allow this to happen to their children? Is it because they don’t pay attention or don’t they see that their children are overweight?" (Third-year trainee)
The GP trainers are disappointed and despondent: patients always return to their old bad habits. The teachers consider it too easy to disapprove of people with overweight. GPs should not behave paternalistically.

**Intervention**

First-year trainees think they can only give simple advice or refer the patient to a dietician. Third-year trainees, like the teachers advice, use motivational interviewing techniques.

“You have to find a suitable approach for each patient. The patient has to set his own goals.” (Third-year trainee)

GP trainers and teachers make a plea for a multidisciplinary treatment programme, covered by health insurance.

“A good multidisciplinary programme close to my practice that renders positive results will make me enthusiastic.” (GP trainer)

Only then or if they can refer a patient for surgery do GP trainers think that it is sensible to discuss their patients’ weight problem with them. Furthermore, they believe that the help of a nurse practitioner and addressing the patient’s family can be useful.

**Barriers**

First-year trainees feel unable to help their patients.

“The fear of not knowing where to refer them.” (First-year trainee)

Third-year trainees require more knowledge of risks and special problems in overweight children. They ask for evidence-based interventions.

“It is not clear to GPs which interventions have been proven to be effective and that is confusing towards patients, so they give up.” (Third-year trainee)

Trainees mention being afraid to offend a patient when addressing his or her weight. That is why third-year trainees find it easier to address a patient anonymously, by letter or written protocol. Trainees also think a mental change in
Attitudes towards obesity treatment

society is needed. They discuss whether medical treatments should be withheld from patients when overweight and whether healthy food should be made cheaper than fast food.

The GP trainers find that telling patients they are overweight ruins the relationship. When patients regard their overweight as an illness they become passive. Trainers are demotivated because no long-lasting positive results followed.

“Discouraged...No effect in more than 20 years.” (GP trainer)

The teachers find it important for the trainees not to expect too much; despite all the efforts until now, the epidemic is still growing.

Tools (Minimal Intervention Strategy: MIS)
The trainees and GP trainers think that a tool like an MIS will help the GP to intervene.

“A tool is good; it would be nice to have a tool that can be used for your patient. But whether or not it works does of course depend on the patient who decides to go along or not.” (First-year trainee)

The first-year trainees and the trainers say they also need a treatment protocol.

The teachers expect an MIS to work as a screening method.

Smoking cessation protocol

Third-year trainees are not yet convinced that being overweight has the same negative effect on a patient’s health as smoking. They consider smoking to be more of a choice than overeating.

“Smoking seems to be something you can stop yourself; it isn’t something that happens to you, but something that you started yourself some time ago.” (Third-year trainee)

The trainees therefore find it easier to tell a patient, even jokingly, to quit smoking than to lose weight. Another reason for this is that patients know that smoking is bad for their health – as all four groups observed – and that smoking is no longer accepted by society. This is not yet the case with overweight.
“When I started working here people were smoking in every room. Now you simply can’t imagine that anymore. It shows you how effective government regulations can be. I think that’s a good example.” (Teacher)

**Ethnicity**

First-year trainees feel that having a different cultural background is an advantage for overweight patients because of the many specific health-insurance-financed courses that have been developed for these patients. Third-year trainees and GP trainers think that overweight may be culturally determined.

“In Turkish or Moroccan families, they feel that when a child is skinny, it isn’t treated well…” (GP trainer)

GP trainers find that women in some cultures are not allowed to do sports or frequently leave the house.

**Children**

First-year trainees think that it is easier to talk to a child than to an adult about their weight problem. Third-year trainees think the opposite: they are afraid to stigmatize a child and to make it prone to teasing.

“I want to figure out for myself how I should tell a child that it has a weight problem without making the child feel defenceless.” (Third-year trainee)

Trainees and trainers feel that the parents may be to blame for their children’s overweight by having set a bad example or by not having spent enough time with their children; the parents need support.

“When I see a child sitting in a stroller with a bag of crisps and a soft drink I think that they deserve better.” (Third-year trainee)

Teachers and trainees find that there are more special GP referral programmes for overweight children than for adults. Teachers, on the other hand, worry that healthy overweight children will not visit the GP; screening should therefore be a task of the youth health organizations. In their opinion, the problem for overweight children more often lies within the family than within the individual.
They expect schools to actively participate in education on healthy lifestyle and promotion of sports. In complicated cases, schools can work together with GPs.

**Educational/role model in GP training**

Third-year trainees and teachers mention the need for education about overweight. Teachers would like to implement a programme on this subject in the first year of training.

“What the trainee learns about treating obesity depends on which part of the specialty the GP is interested in. But I think that the GP specialty training institute and probably also the GP trainers should make the trainee more aware of the existing possibilities to help people lose weight and of the difference between being healthy and being ill.” (Teacher)

The teachers think that it would stimulate the trainees’ interest if the GP trainer is convinced of the importance of treating overweight patients and if the trainee knows what the trainer’s expectations are of the treatment. The other groups did not mention the role of the GP trainer.

**Discussion**

**Summary of main findings**

First-year trainees lack a positive attitude towards and knowledge of the treatment of obese patients; they feel helpless. Third-year trainees complain about attitude problems, even after having been trained in motivational interviewing techniques. Both groups are afraid to offend a patient when addressing his/her weight and lack support of their despondent trainers. Trainees do not feel more competent in treating overweight patients successfully over the course of their GP specialty training.

**Strengths and limitations of the study**

Thirty-six participants were recruited for the focus group session, 25 of whom attended. The reason for not attending the focus group session was not asked. Participants show substantial differences in gender, age and clinical experience but not in ethnic background. The small sample size limits the generalizability of
the results and may have resulted in an overrepresentation of participants with
an interest in the management of overweight patients, which in turn may have led
to an incomplete representation of barriers and a more positive attitude of the
participants. The collected data however showed a high degree of consistency
with the existing literature,\textsuperscript{19-30} and even new themes and a difference in barriers
between the first-year trainees, third-year trainees, GP trainers and teachers
emerged, indicating an adequate sampling strategy.

Although our study took place at only one training institute, the CanMEDS
model\textsuperscript{17} and the healthcare organization are (inter)national, and the training
practices cover all patient groups. The same attitude problems and barriers can
therefore be expected with trainees from institutes in other regions.

It might be more difficult to extrapolate some of the results to countries with
a different position of the GP in the health care system or where the insurance
system is different. Yet because the attitude of the general population towards
obesity\textsuperscript{21,32} and the (increasing) size of the problem\textsuperscript{2} are similar in many countries,
we do expect most of the problems mentioned in our study to be comparable to
those in other western societies.

\textit{Comparison with previous research}

The finding that trainees do not become more competent during specialty
training is similar to the results of a study among internal medicine residents.\textsuperscript{19}
These third-year residents did not feel more competent in treating obesity
than first-year residents, reported more negative reactions to the appearance
of obese patients, and more often lost confidence in their patients' ability to
lose a significant amount of weight. Focus group studies with primary care
clinicians and residents showed that barriers to discuss obesity with patients
could be reduced by training physicians in weight loss counselling;\textsuperscript{20,33} an increase
in knowledge on weight loss treatments has been shown to decrease negative
attitudes in family physicians.\textsuperscript{21} In our groups, however, the third-year trainees
had more knowledge and received more training in motivational interviewing
than the first-year trainees, yet still had a negative attitude. This was also seen in a
study examining the correlation between knowledge and attitude among internal
medicine residents.\textsuperscript{34}

Primary care physicians in other studies were ‘blaming the patient’\textsuperscript{22,23} and found
their overweight patients weak-willed, sloppy, lazy, awkward (as opposed to graceful),
unattractive, ugly,\textsuperscript{26} unwilling to make time for diet or exercise\textsuperscript{24}, and lacking compliance
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and motivation. The attitude problems found in our study differed among the groups and from those mentioned above. The first-year trainees in particular had very negative emotions; they felt incomprehension, disbelief and astonishment. The third-year trainees felt pity for the children and blamed the parents. Yet our GP trainers blamed cultural differences for the obesity of Dutch citizens from a non-Dutch origin. A recent study showed that especially Turkish children are more overweight and obese than other children. The trainers are despondent due to the lack of long-lasting results. This is consistent with other studies confirming that treatment is viewed by many physicians as ineffective and futile or that family practice physicians are cynical about the prospect of weight loss.

Both trainees and trainers make a plea for evidence-based treatment: interventions that have proven to be effective and programmes with positive results, like The Counterweight Programme in the UK. But even studies on this evidence-based and effective approach for weight management in routine primary care identified wide-ranging barriers to engaging practices: overambitious expectations of weight management outcome, doubt about the cost-effectiveness of the programme and weight management being too labour-/resource-intensive. They conclude that a key factor for maintaining engagement with staff is experiencing success.

In contrast with the opinion of patients, the government, and primary care physicians in other countries, the trainees and GP trainers in our focus groups feel that GPs do not have the leading role in the management of obesity. Our groups see only parts of this task, like making patients aware of their obesity, looking for causes and treatment in case of complaints and high cardiovascular risk, as their responsibility. GPs in an inner London Primary Care Trust even indicated not yet to be convinced that obesity treatment should be part of their professional domain.

The increasing tolerance and acceptance of overweight and obesity may have been an important reason for avoiding the issue of weight by the participants in our groups because of the risk of offending the patient. This was also found in GPs in London and Australia. However, as our groups had previously experienced that advice to stop smoking could be given without a problem, they conclude that an image change towards obesity, similar to the change in attitude towards smoking, is necessary in society. Furthermore, time is a generally recognized barrier. Easy-to-use tools and brief weight management interventions, similar to those available for smoking, are therefore being developed to fit within the time frame allotted to most primary care consultations.
During their three years of GP training, the knowledge and skills of the trainees regarding overweight patients improved and their attitude changed, yet they did not feel more competent in treating their overweight and obese patients. This result could not be clearly explained. Trainees might be influenced by the attitude and negative experiences of the GP trainers with whom they work so closely, but this is not directly clear from our study. A study among primary care internal medicine residents showed that the actual practice behavior of the trainer might exert a broad influence on the behavior of his residents. This influence was confirmed by other studies. It is therefore important to understand the role model position of the GP trainer if we want to prevent negative attitudes and improve lifestyle interventions for obesity in the daily practice.

Implications for future research and clinical practice

To improve the GP trainees’ – and future GPs’ – performance in weight management interventions, a quantification of the problems and barriers, including the GP trainer as a role model, is necessary to identify those aspects that mostly require adjustment in specialty training.

There is a big gap between the reality of people becoming more and more obese and the theory on how this epidemic should be stopped. Our focus groups asked other parties to participate or even take the lead in solving this problem, acknowledging that the GP can only be part of a broader approach in addressing obesity. Our participants need tools and programmes with known long-term results, but most of all they need a revived attitude. To accomplish this, it may be equally important to reflect on the GP as a role model as to concentrate on the education of the trainee.
Attitudes towards obesity treatment

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15. Dillon van S. GPs do not notice the need for nutritional advice of their patients. [Huisartsen merken behoefte aan deskundig voedingsadvies van hun patiënten vaak niet op.] Huisarts Wet. 2006;50:155-158. [In Dutch]
Chapter 3

The Attributes of the Clinical Trainer as a Role Model: A Systematic Review

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Nynke van Dijk  
Faridi S. van Etten-Jamaludin  
Margreet Wieringa-de Waard  

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Abstract

Purpose Medical trainees (interns and residents) and their clinical trainers need to be aware of the differences between positive and negative role modeling to ensure that trainees imitate and that trainers demonstrate the professional behavior required to provide high-quality patient care. The authors systematically reviewed the medical and medical education literature to identify the attributes characterizing clinical trainers as positive and negative role models for trainees.

Method The authors searched the MEDLINE, EMBASE, ERIC, and PsycINFO databases from their earliest dates until May 2011. They included quantitative and qualitative original studies, published in any language, on role modeling by clinical trainers for trainees in graduate medical education. They assessed the methodological quality of and extracted data from the included studies, using predefined forms.

Results Seventeen articles met inclusion criteria. The authors divided attributes of role models into three categories: patient care qualities, teaching qualities, and personal qualities. Positive role models were frequently described as excellent clinicians who were invested in the doctor-patient relationship. They inspired and taught trainees while carrying out other tasks, were patient, and had integrity. These findings confirm the implicit nature of role modeling. Positive role models’ appearance and scientific achievements were among their least important attributes. Negative role models were described as uncaring toward patients, unsupportive of trainees, cynical, and impatient.

Conclusions The identified attributes may help trainees to recognize which aspects of the clinical trainer’s professional behavior to imitate, by adding the important step of apperception to the process of learning professional competencies through observation.
Introduction

Being a competent, professional doctor is a prerequisite for providing high-quality care to patients.1,2 Medical educators, especially those involved in the clinical training of interns and residents (hereafter called trainees), therefore need to prepare trainees to meet this requirement. According to Bandura’s3 social learning theory, trainees learn essential professional competencies by observing a role model—defined in the medical literature as a person considered to demonstrate a standard of excellence to be imitated.4-8 Bandura3 also indicates that attention, retention, reproduction, and motivation are necessary for effective observational learning; this process is reciprocally influenced by environmental, behavioral, and personal factors (Figure 1). Thus, role modeling is a powerful strategy by which to instill professional behavior in young doctors through learning by observation.6,8-11

In graduate medical education, the clinical trainer—that is, any physician who supervises the trainee in clinical practice—serves as the role model for the trainee. Consequently, the clinical trainer’s display of professional behavior may positively affect the trainee, whereas the trainer’s display of unprofessional behavior may have a negative effect.5,12-15 To help ensure that trainees imitate the behavior that is appropriate for their future role,9 trainees, trainers, and medical educators need to be aware of the key attributes of role models. Such awareness makes it possible to distinguish by apperception between positive and negative role modeling.16

Figure 1. Model of the observational process of learning as applied to role modeling by the clinical trainer, based on the social learning theory according to Bandura,3 progressing from observation through reinforcement to imitation. Using the attributes of role models identified by the authors from their review of the literature, the trainee can add the important step of apperception.

Multiple instruments have been developed to assess clinical trainers and provide feedback on their clinical teaching.17-19 Some tools20-22 address whether the clinical trainer should be considered a role model but do not discriminate between
positive and negative role modeling or identify the specific aspects of the clinical trainer’s performance that represent the correct professional behavior to imitate. We believe these instruments need to be extended to include items on specific aspects of role modeling to reduce the risk that trainees will imitate unprofessional clinical behavior and to improve the quality of trainers’ role modeling.

In response to this need, we conducted a systematic review of the medical and medical education literature to identify the attributes that characterize positive and negative role models in clinical practice. Our research question was, which attributes characterize the clinical trainer as a positive and negative role model for the trainee?

**Method**

*Literature search*

Using a search strategy developed by a clinical librarian (F.S.v.E.-J.), we systematically searched the MEDLINE, EMBASE, ERIC, and PsycINFO databases via Ovid for articles published in any language, from each database’s earliest available date through the day of the search, May 5, 2011. Search terms included combinations and alternatives of the following key terms: *graduate medical education, residency, clinical trainer or teacher or medical teacher, clinical and family or general practice, role model or modeling, and preceptor and professional role* (for the complete search strategy, see Supplemental Digital Appendix 1, http://links.lww.com/ACADMED/A111). We performed additional manual searches by reviewing the references of retrieved articles as well as the content of four medical education journals (*Academic Medicine, Journal of Postgraduate Medicine, Medical Education, Medical Teacher*) published within the year prior to the search. We also reviewed titles and abstracts of articles cited in the reference lists of papers presented on March 22, 2011, at a meeting in Utrecht on the topic of our review that was attended by national experts in the field and organized by the Netherlands Association for Medical Education (NVMO).

We included original studies, both qualitative and quantitative, that described attributes of the clinical trainer as a role model for the trainee in graduate medical education, in the hospital or in primary care. We excluded duplicates, articles that
did not report original studies, and studies describing medical students, medical education before medical school graduation, specialty choice, or the role of the clinical trainer as a teacher or mentor rather than as a role model.

Selection process
We conducted the selection process during May to September 2011 (Figure 2). Two of us (H.J.-v.d.L., N.v.D.) independently reviewed the titles and abstracts of all unique articles identified in the search. We were able to eliminate many articles after screening their titles and abstracts because our search strategy was broad and identified articles with wide-ranging descriptions of role modeling. We resolved any disagreements through discussion until we reached consensus.

After the initial screening, we retrieved the full text of the publications we considered to be potentially relevant. We (H.J.-v.d.L., N.v.D.) read each of these articles independently and used a form that we had pilot-tested to assess whether they met inclusion criteria. One publication was not available, so we obtained it from its author. We discussed any doubts about particular studies until we reached consensus.

Quality assessment and data extraction
Two of us (H.J.-v.d.L., N.v.D.) used the validated Medical Education Research Study Quality Instrument (MERSQI) to independently assess the methodological quality of each of the studies selected for inclusion. We reached agreement on scores through discussion. The possible MERSQI score for quantitative studies ranges between 5 and 18, with higher scores indicating higher quality. However, some MERSQI items are not valid for qualitative studies, so we omitted them when assessing such studies. This resulted in a maximum possible score of 15 for qualitative studies.

We (H.J.-v.d.L., N.v.D.) independently abstracted data from each included study using the Best Evidence Medical Education (BEME) Collaboration systematic review data extraction form, which we modified to also fit qualitative research by adding tables to record reported attributes. Any disagreements were discussed until consensus was reached. For each included study, we extracted the following information: study design; country of origin; types and numbers of participants; specialty; most important and least important attributes of positive role models;
and attributes of negative role models. We determined an attribute’s importance by the number of studies in which it was mentioned, combined (if available) with its relative importance as reported by the trainees participating in that study.

**Results**

**Study selection**

Our literature search yielded 4,955 unique articles (Figure 2). After screening all titles and abstracts, we excluded 4,882 articles. We retrieved the full text of 73 studies and reviewed them against our inclusion and exclusion criteria. Of these articles, 17 met our inclusion criteria.

![Screening process and results of the literature search on the attributes of the clinical trainer as a role model for trainees, indicating the number of articles remaining after each stage of screening. The articles found by manual searches are not included in this figure as they did not meet inclusion criteria or were duplicates.](image)

**Characteristics and quality of included studies**

Table 1 presents the characteristics of and results of the quality assessment of the 17 studies included in this systematic review. The mean MERSQI score for the 10 quantitative-design studies (59%) was 9.7 (range: 7.5–11; maximum possible score = 18). For the 7 (41%) qualitative-design studies, the mean MERSQI score was 8.1 (range: 6–11; maximum possible score = 15).
### Table 1

Characteristics of the 17 Studies Included in a Systematic Review of the Literature (1948-May 2011) on the Attributes of Clinical Trainers as Role Models in Graduate Medical Education

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Country of origin</th>
<th>Study design</th>
<th>Type of participants†</th>
<th>Specialty</th>
<th>Number of participants‡</th>
<th>MERSQI score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fromme et al, 2010*</td>
<td>United States</td>
<td>Interviews, focus groups</td>
<td>Hospitals, residents, students</td>
<td>Pediatrics</td>
<td>Interviews: 6, Focus groups: 30</td>
<td>11</td>
</tr>
<tr>
<td>Agarwal et al, 2010†</td>
<td>United States</td>
<td>Questionnaires</td>
<td>Residents</td>
<td>Radiology</td>
<td>SARRAD: 30, Non-SARRED: 103†</td>
<td>10</td>
</tr>
<tr>
<td>Park et al, 2010†</td>
<td>Canada</td>
<td>Semi-structured interviews</td>
<td>Residents, faculty</td>
<td>Surgery</td>
<td>Residents/faculty: 34</td>
<td>6.5</td>
</tr>
<tr>
<td>Wear and Skillicorn, 2009*</td>
<td>United States</td>
<td>Focus groups</td>
<td>Attendings, residents, students</td>
<td>Psychiatry</td>
<td>Students: 60, Attendings/residents: 18</td>
<td>8</td>
</tr>
<tr>
<td>Wyber and Egan, 2009*</td>
<td>New Zealand</td>
<td>Semi-structured interviews</td>
<td>GPs, house officers (PGYs 1 and 2)</td>
<td>Surgery</td>
<td>GPs: 12, House officers: 13</td>
<td>6</td>
</tr>
<tr>
<td>Yazigi et al, 2006†</td>
<td>Lebanon</td>
<td>Questionnaires</td>
<td>Interns, residents</td>
<td>General medicine, surgical and medical specialties</td>
<td>Interns: 25, Junior/senior residents: 33/32</td>
<td>10</td>
</tr>
<tr>
<td>Weissmann et al, 2006</td>
<td>United States</td>
<td>Observations, post-encounter interviews</td>
<td>Residents, students, faculty, patients</td>
<td>Medicine</td>
<td>Faculty observations: 12</td>
<td>9.5</td>
</tr>
<tr>
<td>Maker et al, 2004 (Part 2)</td>
<td>United States</td>
<td>Questionnaires, pre- and post-intervention</td>
<td>Residents</td>
<td>Surgery</td>
<td>Residents: 39, Faculty role models: 44</td>
<td>8</td>
</tr>
<tr>
<td>Wright and Carrese, 2002†</td>
<td>United States</td>
<td>Semi-structured, in-depth interviews</td>
<td>Role models†</td>
<td>Internal medicine</td>
<td>Role models: 29</td>
<td>8.5</td>
</tr>
<tr>
<td>Study and publication date</td>
<td>Country of origin</td>
<td>Study design</td>
<td>Type of participants†</td>
<td>Specialty</td>
<td>Number of participants‡</td>
<td>MERSQI score*</td>
</tr>
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<td>----------------------------</td>
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</tr>
<tr>
<td>Sinai et al, 2001*4</td>
<td>Ontario, Canada</td>
<td>Interviews following a format</td>
<td>Residents, clinical supervisors</td>
<td>Psychiatry</td>
<td>Residents: 13, Supervisors: 13</td>
<td>7</td>
</tr>
<tr>
<td>Elzubeir and Rizk, 2001*4</td>
<td>United Arab Emirates</td>
<td>Questionnaires (similar to Wright 1996§)</td>
<td>Students, interns, residents</td>
<td>Medicine</td>
<td>Students: 66, Interns/residents: 30</td>
<td>9</td>
</tr>
<tr>
<td>Hojat et al, 1999§5</td>
<td>United States</td>
<td>NEO PI-R§</td>
<td>Residents, role models; compared with general population of adults</td>
<td>Internal medicine</td>
<td>Residents: 104, Positive role models¶: 188</td>
<td>11</td>
</tr>
<tr>
<td>Magee and Hojat, 1998*6</td>
<td>United States</td>
<td>Questionnaires</td>
<td>Physicians</td>
<td>Medicine</td>
<td>Positive role models¶: 188</td>
<td>11</td>
</tr>
<tr>
<td>Wright et al, 1998*7</td>
<td>United States</td>
<td>Case control comparative trial questionnaires</td>
<td>Role models,‡ attending physicians‡</td>
<td>Internal medicine</td>
<td>Role models: 165, Attending physician as controls: 246</td>
<td>10</td>
</tr>
<tr>
<td>Côté et al, 1997*7</td>
<td>Quebec, Canada</td>
<td>Questionnaires</td>
<td>Residents</td>
<td>Family medicine, medical specialties, surgery</td>
<td>Family medicine: 189, Medical specialties: 147, Surgery:64</td>
<td>11</td>
</tr>
<tr>
<td>Wright, 1996*8</td>
<td>United States</td>
<td>Questionnaires</td>
<td>Residents</td>
<td>Various specialty programs</td>
<td>Residents: 195</td>
<td>9</td>
</tr>
</tbody>
</table>

The authors used the validated Medical Education Research Study Quality Instrument (MERSQI)*4 to assess the quality of the studies included in this review. They modified the MERSQI when evaluating qualitative studies by omitting items that were not valid for such studies. This resulted in a maximum (max.) possible score of 15 for qualitative studies.

*GPs indicates general practitioners; PGYs, post-graduate years; SARRED, Siemens AUR Radiology Resident Academic Development Program.
†Attending physicians identified as role models by house officers.
§Neuroticism Extraversion Openness Personality Inventory–Revised.
¶Physicians nominated as role models by chief executive officers.
#Attending physicians as controls, not identified by any house officer as excellent role model.
Most important attributes of positive role models

We determined that the attributes of positive role models (Table 2) can be divided into three main categories: patient care qualities, teaching qualities, and personal qualities. This is the same classification Wright found in 1996.

Patient care qualities. First, a positive role model is a competent specialist with up-to-date knowledge. He or she is an experienced and strong clinician with a commitment to excellence and growth, and therapeutic skills, and sound clinical reasoning. Furthermore, a positive role model is compassionate, caring, engaging, and empathic to patients and is able to build a personal connection with them. He or she is dedicated to the quality of patient care and centers the care he or she provides on the patient rather than the illness. A positive role model communicates well with patients and their relatives, shows respect to patients, has a humanistic attitude toward patients, and educates and fully informs patients. In addition, he or she has respect for and gives recognition to others, resulting in positive interactions with other health care workers.

Moreover, a positive role model displays a high degree of professionalism, assumes responsibility in difficult clinical situations, and is able to cope with adversity. In daily life, he or she demonstrates enthusiasm for his or her work, enjoys the job, and displays satisfaction with his or her chosen specialty.

Teaching qualities. As a clinical educator, a positive role model employs a humanistic style of teaching, establishes rapport with learners, tailors his or her teaching to learners’ needs, creates a safe learning environment, and gives learners the autonomy to make independent decisions. Moreover, a positive role model teaches trainees about the psychological aspects of medicine and the importance of the doctor–patient relationship. At the same time, he or she adopts a positive attitude toward trainees, shows enthusiasm for teaching, and makes himself or herself available for trainees and accessible for questions. He or she stimulates critical thinking, makes learning exciting, and is inspirational. Finally, a positive role model is aware of the importance of his or her role model status for medical education and therefore acts as a dedicated and active role model, encouraging the trainee to adopt similar behavior.
Personal qualities. A positive role model is patient,\textsuperscript{6,8,29} has self-confidence\textsuperscript{30,34} and self-esteem,\textsuperscript{35,36} and displays honesty and integrity.\textsuperscript{4,5,6} He or she is easy to work with\textsuperscript{29} and co-operative,\textsuperscript{35,36} shows humility and humanism,\textsuperscript{26,30,37} and has leadership ability.\textsuperscript{5,7,30}

\textit{Least important attributes of positive role models}

Seven (41\%) studies\textsuperscript{4,6-8,30,32,33} reported attributes considered the least important in identifying a clinical trainer as a positive role model (Table 2). These include stimulating the trainee’s interest in research or assisting the trainee with finding and completing research,\textsuperscript{6,30,32,33} being the author of numerous publications,\textsuperscript{4,6,8} having a national or international reputation,\textsuperscript{4,30} or having received honors and awards.\textsuperscript{4} Whether the clinical trainer has management\textsuperscript{30} or presentation skills\textsuperscript{6} or attends conferences\textsuperscript{6,32,33} also has little importance. The clinical trainer’s general physical appearance\textsuperscript{4,6,8,30} is reported as having little influence, as are the trainer’s sharing of interests with the trainee outside medicine,\textsuperscript{6,8} spending time with trainees and learning about their personal lives,\textsuperscript{7} or participating in community affairs.\textsuperscript{6}

\textit{Attributes of negative role models}

Six (35\%)\textsuperscript{5,27-30,34} of the 17 studies reported attributes of negative role models (Table 2). These characteristics can also be divided into the categories of patient care qualities, teaching qualities, and personal qualities.

Patient care qualities. A negative role model is uncaring\textsuperscript{29} toward and communicates poorly\textsuperscript{29,30} with patients, adopts an uncooperative attitude toward health care workers,\textsuperscript{30} and displays unprofessional attitudes\textsuperscript{27} and unethical behavior.\textsuperscript{34} In addition, if the trainer’s knowledge of the field is not up to date, the trainee may feel more knowledgeable than the trainer.\textsuperscript{34}

Teaching qualities. A negative role model teaches the trainee the wrong thing to do and the wrong way to behave,\textsuperscript{27} gives poor support to learners,\textsuperscript{27} and rarely provides feedback to trainees.\textsuperscript{28} He or she practices a sink-or-swim approach from the outset.\textsuperscript{28} Furthermore, he or she is disinterested\textsuperscript{8} and has difficulty remembering names and faces.\textsuperscript{5}
Personal qualities. A negative role model is cynical, has a sexist attitude, and is impatient, inflexible, and overopinionated. He or she may nitpick and be harsh, unfair, or self-serving. Finally, a negative role model may lack self-confidence or leadership skills; he or she may be quiet and reserved or overextended.

Table 2
The Attributes of Positive and Negative Role Models, Reported in 17 Studies Included in a Systematic Review of the Literature on Role Modeling by Clinical Trainers in Graduate Medical Education

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Attributes of positive role models</th>
<th>Attributes of negative role models</th>
</tr>
</thead>
</table>
| Fromme et al, 2010          | • Displays professional behaviors with patients and family  
• Demonstrates knowledge acquisition and clinical thought processes  
• Models professional behaviors  
• Demonstrates humility and humanism  
• Uses humanistic style of teaching as an educator | • Is the chief  
• Has received honors/awards  
• Has a national/international reputation  
• Has numerous publications  
• Has an (un)attractive general physical appearance |
| Agarwal et al, 2010         | • Has availability  
• Demonstrates enthusiasm for work  
• Has a positive attitude toward residents  
• Demonstrates honesty/integrity | • Teaches what not to do and how not to behave  
• Exhibits unprofessional attitude |
| Park et al, 2010            | • Displays high degree of professionalism  
• Encourages similar behavior | • Rarely gives feedback  
• Puts sink-or-swim scenarios in place from the first minute of the first day  
• Is cynical |
| Wear and Skillcorn, 2009    | • Is very inspirational  
• Does the job with pleasure  
• Tries to put a human face on patients  
• Exhibits vulnerability, frustrations, uncertainty  
• Creates safe environment | • Rarely gives feedback  
• Puts sink-or-swim scenarios in place from the first minute of the first day  
• Is cynical |
Table 2 continued

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Most important attributes</th>
<th>Least important attributes</th>
<th>Attributes of positive role models</th>
<th>Attributes of negative role models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wyber and Egan, 2007&lt;sup&gt;29&lt;/sup&gt;</td>
<td>• Is supportive, nice, generous with time&lt;br&gt;• Is patient and accessible for questions&lt;br&gt;• Is easy to work with and enjoys the job&lt;br&gt;• Demonstrates good relationships with patients&lt;br&gt;• Is compassionate, caring, engaging&lt;br&gt;• Maintains interests outside medicine&lt;br&gt;• Displays enthusiasm for medicine&lt;br&gt;• Demonstrates relationship with his/her specialty</td>
<td>• Conducts research&lt;br&gt;• Has management skills&lt;br&gt;• Has a professional reputation&lt;br&gt;• Has an adequate external appearance</td>
<td>• Offers poor support&lt;br&gt;• Communicates poorly&lt;br&gt;• Has poor relationships with patients&lt;br&gt;• Is uncaring&lt;br&gt;• Is disinterested&lt;br&gt;• Is bitter, cynical</td>
<td></td>
</tr>
<tr>
<td>Yazigi et al, 2006&lt;sup&gt;30&lt;/sup&gt;</td>
<td>• Possesses relevant medical knowledge, sound clinical reasoning&lt;br&gt;• Has effective therapeutic skills&lt;br&gt;• Displays humanistic attitude with patients&lt;br&gt;• Interacts collaboratively with health care workers&lt;br&gt;• Has mastered technical abilities&lt;br&gt;• Has self-confidence, leadership ability</td>
<td>• Has inadequate relations with patients&lt;br&gt;• Is uncooperative in interactions with health care workers&lt;br&gt;• Lacks self confidence&lt;br&gt;• Lacks leadership ability&lt;br&gt;• Has an inadequate external appearance</td>
<td>• Demonstrates personal interest, empathy&lt;br&gt;• Demonstrates appropriate nonverbal communication with patients and family members&lt;br&gt;• Shows respect toward patients, builds personal connections&lt;br&gt;• Is self-aware of teaching/role modeling</td>
<td></td>
</tr>
<tr>
<td>Weissmann et al, 2006&lt;sup&gt;31&lt;/sup&gt;</td>
<td>• Stimulates critical thinking with use of literature&lt;br&gt;• Demonstrates skills and decision making with confidence and virtuosity&lt;br&gt;• Provides feedback to trainees&lt;br&gt;• Allows trainees autonomy to make independent decisions</td>
<td>• Assists trainees with finding and completing research for publication&lt;br&gt;• Conducts teaching rounds&lt;br&gt;• Attends didactic teaching&lt;br&gt;• Allows procedures to be carried out according to ability&lt;br&gt;• Offers/provides didactic teaching</td>
<td>• Conducts research&lt;br&gt;• Has management skills&lt;br&gt;• Has a professional reputation&lt;br&gt;• Has an adequate external appearance</td>
<td></td>
</tr>
<tr>
<td>Maker et al, 2004&lt;sup&gt;32,33&lt;/sup&gt;</td>
<td>• Offers poor support&lt;br&gt;• Communicates poorly&lt;br&gt;• Has poor relationships with patients&lt;br&gt;• Is uncaring&lt;br&gt;• Is disinterested&lt;br&gt;• Is bitter, cynical</td>
<td>• Demonstrates personal interest, empathy&lt;br&gt;• Demonstrates appropriate nonverbal communication with patients and family members&lt;br&gt;• Shows respect toward patients, builds personal connections&lt;br&gt;• Is self-aware of teaching/role modeling</td>
<td>• Conducts research&lt;br&gt;• Has management skills&lt;br&gt;• Has a professional reputation&lt;br&gt;• Has an adequate external appearance</td>
<td></td>
</tr>
</tbody>
</table>
The attributes of the clinical trainer

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Attributes of positive role models</th>
<th>Attributes of negative role models</th>
</tr>
</thead>
</table>
| Wright and Carrese, 2002   | • Has interpersonal skills, positive outlook  
• Is committed to excellence and growth  
• Has integrity,  
• Establishes rapport with learners  
• Develops specific teaching philosophies and methods  
• Is committed to the growth of learners  
• Is a strong clinician, provides high-quality, compassionate care  
• Assumes responsibility in difficult clinical situations  
• Goes the extra mile  
• Is the patients advocate  
• Has leadership ability  
• Is aware of role model status | • Is impatient, overly opinionated, inflexible  
• Is quiet, reserved  
• Is overextended  
• Has difficulty remembering names and faces |
| Sinai et al, 2001          | • Is comfortable with own strengths and weaknesses  
• Is Knowledgeable  
• Has clinical experience  
• Is up to date in the field  
• Has good clinical skills  
• Is a dedicated and active role model | • Is self-serving  
• Places undue emphasis on billing or length of hospital stay  
• Demonstrates unethical behavior, sexist attitudes, nitpicking  
• Is harsh, unfair  
• Has a one-dimensional view of the patient  
• Leaves residents feeling more knowledgeable than the supervisor |
### Attributes of positive role models

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Most important attributes</th>
<th>Least important attributes</th>
</tr>
</thead>
</table>
| Elzubeir and Rizk, 2001    |  • Is dedicated to quality patient care  
  • Demonstrates honesty/integrity  
  • Has a positive attitude toward learners  
  • Is patient  
  • Makes learning exciting/stimulating  
  • Understands learners’ needs  
  • Educates and fully informs patients  
  • Respects and recognizes others  
  • Is committed to acting for patients’ good  
  • Possesses excellent clinical reasoning skills  
  • Communicates effectively with students  
  • Is an excellent diagnostician and professionally competent  
  • Interacts positively with other health care workers  
  • Has the ability to explain difficult subjects  
  • Expresses enthusiasm for teaching  
  • Conveys empathy for patients  
  • Can teach various levels of students  
  • Communicates well with patients and their relatives |  • Has interests outside medicine similar to the trainees’  
  • Has numerous publications  
  • Has an (un)attractive general physical appearance  
  • Participates in community affairs  
  • Attends conferences  
  • Has the ability to promote interest in research  
  • Has presentation skills |
| Hojat et al, 1999; Magee and Hojat, 1998 |  • Is co-operative and eager to face challenges  
  • Contributes to solving problems  
  • Is not cynical  
  • Has high self-esteem; is dominant and forceful  
  • Exerts much energy  
  • Does not anger quickly  
  • Is not a sensation seeker  
  • Is able to control impulses and cope with adversity |  • Is conscientious  
  • Is extraverted  
  • Demonstrates openness |
| Wright et al, 1998 |  • Spends > 25% of his or her time teaching  
  • Spends 25 hours per week teaching and conducting rounds when attending on the wards  
  • Has served as chief resident  
  • Stresses the importance of the doctor–patient relationship in his or her teaching  
  • Teaches the psychosocial aspects of medicine  
  • Directs his or her teaching to the learners’ needs  
  • Perceives role modeling as important to the process of medical education  
  • Is satisfied with his or her current position |  • Spends >6 hours with house staff when not acting as their attending  
  • Has any formal training in teaching  
  • Enjoys teaching house staff  
  • Learns about the life of house staff  
  • Spends > 15% of his or her time on administrative work  
  • Offers a high degree of perceived total support |
### Table 2 continued

<table>
<thead>
<tr>
<th>Study and publication date</th>
<th>Attributes of positive role models</th>
<th>Least important attributes</th>
<th>Attributes of negative role models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Côté et al, 1997&lt;sup&gt;17&lt;/sup&gt;</td>
<td>• Has clinical experience</td>
<td></td>
<td>• Has a certain number of publications</td>
</tr>
<tr>
<td></td>
<td>• Is humane to patients</td>
<td></td>
<td>• Has publications in certain journals</td>
</tr>
<tr>
<td></td>
<td>• Shows simplicity and warmth</td>
<td></td>
<td>• Has an (un)attractive general appearance</td>
</tr>
<tr>
<td></td>
<td>• Is a good teacher</td>
<td></td>
<td>• Shares similar interests outside medicine with trainee</td>
</tr>
<tr>
<td></td>
<td>• Centers care around the patient instead of the illness</td>
<td></td>
<td>• Has the ability to perform various procedures</td>
</tr>
<tr>
<td></td>
<td>• Collaborates with other health care workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pays attention to the quality of life of patients</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is concerned about the prevention of illness and the promotion of health</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is a competent researcher</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pays attention to the cost of the health care system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wright, 1996&lt;sup&gt;8&lt;/sup&gt;</td>
<td>• Displays positive attitudes toward residents</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is enthusiastic about his or her work</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has the ability to explain difficult subjects</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Has patience</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Is proficient as a diagnostian</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Possesses communication skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Shows compassion for patients and their families</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interacts well with other health care workers</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Makes learning exciting and stimulating</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Interacts well with patients and their families</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Can teach various levels of trainees</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Possesses presentation skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Promotes interest in research</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>8</sup> The results from articles based on the same data written by the same authors are presented together, resulting in fifteen sets of items.
Discussion and Conclusions

Through our systematic review of the medical and medical education literature on the clinical trainer as a role model for trainees (interns and residents), we have identified extensive lists of attributes that describe positive role models and negative role models. These attributes can be divided into three categories—namely, patient care qualities, teaching qualities, and personal qualities.

Although the differences among teaching, mentoring and role modeling are often thought to be unclear due to overlap in daily practice, role modeling is the most implicit (i.e., also occurs when the clinical trainer’s focus is on other, not trainee-related, tasks). Our findings illustrate this implicit aspect of role modeling: Positive role models were most commonly described as being excellent, experienced clinicians who had empathy for patients and positive interactions with patients, patients’ families, and other health care workers. Positive role models were also frequently described as displaying teaching qualities, including commitment to the growth of learners and a humanistic style of teaching, as well as personal qualities such as enthusiasm. Thus, the literature describes the clinical trainer who is a positive role model as someone who is admired for being, or acting as, a professional, or as someone who inspires and teaches while carrying out other tasks.

A good clinical trainer should be aware of his or her role model status because heightened awareness of role modeling may lead the trainer to seek the opportunity to demonstrate behavior, to comment on what was done, and to explain what was done. Some authors stressed that the clinical trainer should make his or her implicit behavior as a role model explicit to the trainee. This would help the trainee pay attention, retain what the trainer is modeling, become motivated, and use the modeled behavior as a guide for the trainee’s own actions.

In addition to describing the most important attributes of positive role models, almost half of the studies reviewed reported those attributes considered least important. These included whether the clinical trainer was active in research, published articles, played a management role, had achieved an international or national reputation, or had received awards. Furthermore, the clinical trainer’s general physical appearance was not considered to have much influence.
on her or her performance as a role model. This is in contrast with Gurung and Vespia’s earlier finding that the teacher’s attractiveness was positively correlated with the student’s perceived learning. The authors of that study, however, interpreted “attractiveness” more as “liking” the teacher than as related to the teacher’s physical appearance. Another study that examined the influence of the trainer’s appearance on students’ evaluations of teaching showed that attractiveness had no effect. Thus, it seems that the clinical trainer’s behavior—as demonstrated through patient care, personal, and teaching qualities—is more important than the trainer’s appearance or scientific achievements.

The characteristics of negative role models, as reported in the studies reviewed, included being uncaring toward patients as well as having poor relationships with patients and other health care workers. Additionally, negative role models were described as being unsupportive and disinterested toward learners, being cynical and impatient, or having a sexist attitude. These attributes of negative role modeling are in marked contrast to the qualities of positive role modeling described above, and, thereby, confirm how important attributes are for characterizing role model behavior. Janssen et al similarly described the importance of the attributes of positive role models; they considered positive role modeling a prerequisite for stimulating trainees to provide patients with high-quality care. Kenny argued that the impact of negative role modeling may adversely affect the trainee’s establishment of a professional identity, and suggested there is a need for trainees to be able to discriminate between good and poor role modeling.

**Limitations**

This review has a number of limitations. First, although much has been written about the importance of role modeling in medical education, we only found 17 articles based on original studies that met our inclusion criteria. Furthermore, these studies used different methods, techniques, and wording, which prevented us from performing a meta-analysis. Nonetheless, we were able to identify congruent qualities, and three distinguishing categories emerged from our analysis of these data. Second, the 17 studies were conducted in a range of countries and specialties, in different sociocultural and ethnic circumstances, which may have influenced the generalizability of the results. However, we believe that the similarity of the data from these diverse settings suggests that the identified attributes are transferable to other settings.
Implications for medical education and future research

The literature shows that efforts have been made to improve clinical role modeling. For example, Maker et al\textsuperscript{33} used identified role model criteria as a tool to evaluate and provide feedback to clinical trainers. With these criteria, they could confirm a trainer’s improvement with regard to role modeling after the intervention. Cruess et al\textsuperscript{16} described additional strategies to improve role modeling using a number of characteristics identified in their review, such as raising the trainer’s awareness of serving as a role model and facilitating reflection on the behaviors that had been modeled.

Such strategies are in line with the recommendations made by Wright and colleagues,\textsuperscript{5,7} who concluded that the identified attributes of positive role models can be acquired through training, particularly by making clinical trainers aware of their role model function. Such continuous awareness of the role model task is, as Wright and Carrese\textsuperscript{5} stated, an important attribute of an excellent role model. Thus, we suggest that the most important attributes of positive role models identified in our review could form the foundation of a training course for clinical trainers. They could also be used to develop an instrument for enhancing clinical trainers’ awareness of being a role model and to give trainers feedback on their role-modeling behaviors.

As trainees learn through observation and imitation,\textsuperscript{3} it is important that they learn to distinguish between positive and negative role modeling to prevent them from unwittingly imitating a trainer’s less desirable behavior.\textsuperscript{40} Given that the characteristics identified in this review were drawn from studies in clinical settings where multiple clinical trainers were observed and compared, the question arises as to whether trainees in a small hospital or primary care setting with only one or two clinical trainers would be able to distinguish between positive and negative role modeling. This is particularly relevant in situations in which it is not possible to compare the modeled behavior with that of another trainer who may be more professionally competent.\textsuperscript{40} However, if trainees were to have an objective instrument that they could use to evaluate their clinical trainers, they could identify negative role modeling. Therefore, we recommend incorporating the attributes we identified in this review into a tool to help trainees determine, through apperception, whether to imitate a trainer’s role-modeled behavior. Such
a tool would help ensure trainees learn the professional competencies that will enable them to become doctors capable of providing high-quality patient care.

Further research is necessary, however, to transform the attributes we identified in this review into a validated instrument to assess the clinical trainer as a role model. In addition, such a tool could be used in studying the effect of training courses for clinical trainers to improve role modeling.
References

The attributes of the clinical trainer


37. Côté L, Maheux B, Beaudoin C. Role models of residents graduating in family medicine and in different specialties in Quebec. [In French.] Can Fam Physician. 1997;43:907-913.


Chapter 4

Assessment of the Clinical Trainer as a Role Model: A Role Model Apperception Tool (RoMAT)

Ria Jochemsen-van der Leeuw
Nynke van Dijk
Margreet Wieringa-de Waard

Academic Medicine 2014;89(4):671-677
Abstract

Purpose Positive role modeling by clinical trainers is important for helping trainees to learn professional and competent behavior. The authors developed and validated an instrument to assess clinical trainers as role models: the Role Model Apperception Tool (RoMAT).

Method On the basis of a 2011 systematic review of the literature and through consultation with medical education experts and with clinical trainers and trainees, the authors developed 17 attributes characterizing a role model, to be assessed using a Likert scale. In 2012, general practice (GP) trainees, in their first or third year of post-graduate training, who attended a curriculum day at four institutes in different parts of the Netherlands, completed the RoMAT. The authors performed a principal component analysis on the data that were generated, and they tested the instrument’s validity and reliability.

Results Of 328 potential GP trainees, 279 (85%) participated. Of these, 202 (72%) were female, and 154 (55%) were first-year trainees. The RoMAT demonstrated both content and convergent validity. Two components were extracted: “Caring Attitude” and “Effectiveness.” Both components had high reliability scores (0.92 and 0.84, respectively). Less experienced trainees scored their trainers significantly higher on the Caring Attitude component.

Conclusions The RoMAT proved to be a valid, reliable instrument for assessing clinical trainers’ role-modeling behavior. Both components include an equal number of items addressing personal (Heart), teaching (Head), and clinical (Hands-on) qualities, thus demonstrating that competence in the “3Hs” is a condition for positive role modeling. Educational managers (residency directors) and trainees alike can use the RoMAT.
Introduction

During their clinical training, medical interns and residents (hereafter called trainees) learn professional and competent behavior by working alongside clinical trainers. A clinical trainer is any physician who supervises trainees in clinical practice.

Trainees take an active role in improving their clinical competence through educational sessions during which clinical trainers act as teachers, as well as through actively responding to the feedback they receive (with regard to their clinical skills) from clinical trainers acting as mentors. In addition, trainees grow into their future role as physicians by imitating clinical trainers acting as role models. In order to become a positive role model, a clinical trainer should be competent in three domains: personal, clinical, and teaching qualities. We have, therefore, defined role modeling to be a combination of personal characteristics (Heart), professional patient care (Hands-on), and teaching that involves continuously making the implicit explicit (Head). Being a role model, as opposed to being a teacher or a mentor when the moment calls for it, implies that the clinical trainer integrates the “3Hs” as a unity all the time and everywhere.

Wright and Carrese (2002) emphasize that identifying with and emulating multiple role models is important for medical trainees. Yet, in many small clinical settings (e.g., general practitioner [GP] training practices), only one or two clinical trainers are available. The absence of multiple role models, whom a trainee can compare against one another, may increase the trainee’s risk of imitating negative role models. To recognize which of their trainers’ role-model behaviors they should imitate, trainees need an apperception assessment tool. Such a tool could allow trainees to discriminate between positive and negative role modeling. In addition, an educational manager (e.g., residency director) could also use a role modeling assessment tool to evaluate and provide feedback to individual clinical trainers about their role modeling, thereby, enabling them to examine and improve their role-modeling behaviors.

Many tools have already been developed for assessing clinical trainers as medical educators; these include the Cleveland Clinic Teaching Effectiveness Instrument (CCTEI), the System for the Evaluation of Teaching Qualities instrument,
and the Clinical Teaching Assessment Instrument. Two tools (the Evaluation and Feedback For Effective Clinical Teaching instrument and the Maastricht Clinical Teaching Questionnaire) even address specifically whether a clinical trainer should be considered a role model. Because they do not assess particular attributes of role modeling (as opposed to teaching or mentoring), these tools do not identify negative role modeling as such and cannot help trainees avoid imitating negative behaviors. Furthermore, these tools offer no possibilities for providing specific feedback on which aspects of the role model function could be improved.

This study therefore aims to develop and validate a tool for assessing various aspects of the clinical trainer as a role model.

**Method**

**Context**

In order to work independently as a GP in the Netherlands, physicians who have graduated from a bachelor-master curriculum at a university must complete three years of additional specialty training. During the first and third years of this training, each of these doctors works as a trainee in a primary care practice four days each week, supervised by at least one GP, the clinical trainer. In the second year, each physician works in a variety of clinical settings, usually with more than two clinical trainers. Central curriculum sessions, which cover all CanMEDS skills and topics, are organized at one of the eight Dutch institutes for GP specialty training. GPs and behavioral scientists (both called 'teachers'—not to be confused with trainers) provide the instruction. The sessions are held one day each week for all GP trainees and eight days each year (for faculty development) for all GP trainers.

**Participants**

We conducted this study among GP trainees at four of the Dutch institutes for GP specialty training. These four, located in Amsterdam, Nijmegen, Maastricht, and Leiden, represented the Netherlands geographically, as well as provided a good number of different GP training practices and settings.
Table 1

Personal Characteristics of Residents in Four General Practice Programs in the Netherlands Who Responded to the New Role Model Apperception Tool (RoMAT), 2012*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>No. (% of 279)</th>
</tr>
</thead>
<tbody>
<tr>
<td>City / Program</td>
<td></td>
</tr>
<tr>
<td>Amsterdam</td>
<td>134 (48)</td>
</tr>
<tr>
<td>Maastricht</td>
<td>63 (22)</td>
</tr>
<tr>
<td>Leiden</td>
<td>58 (21)</td>
</tr>
<tr>
<td>Nijmegen</td>
<td>24 (9)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>202 (72)</td>
</tr>
<tr>
<td>Male</td>
<td>75 (27)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Year of training</td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>154 (55)</td>
</tr>
<tr>
<td>Third</td>
<td>124 (45)</td>
</tr>
<tr>
<td>Missing</td>
<td>1 (&lt;1)</td>
</tr>
<tr>
<td>Number of clinical trainer(s)</td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>164 (59)</td>
</tr>
<tr>
<td>Two</td>
<td>108 (38)</td>
</tr>
<tr>
<td>Three or more</td>
<td>5 (2)</td>
</tr>
<tr>
<td>Missing</td>
<td>2 (1)</td>
</tr>
</tbody>
</table>

*The mean age of the 279 residents was 30 years (standard deviation ± 3.5 years) [range 25 – 47 years]. The mean number of years prior to beginning the GP specialty training was 3.5 years (standard deviation ± 2.3 years) [range 0-20 years].

The potential participants (n = 328) comprised the first and third-year GP trainees attending one of the central curriculum sessions during the first four months of 2012. We invited all the trainees who were present on the day we distributed the questionnaires.

We instructed the participants to complete the questions keeping their primary clinical trainer in mind. We informed all of the GP trainees about the nature of the study, and we assured them that participation was voluntary and that the questionnaires would be coded to protect anonymity. We offered no incentives. Each participating trainee signed an informed consent form. We stored all
informed consent forms and other identifiers (separately from the forms) in a locked cabinet under the control of the head of the research department (M.W-dW). We obtained ethical approval for this study from the Ethical Review Board of the NVMO (Dutch Association for Medical Education).

**Development and administration of the instrument**

We developed the survey instrument in three stages. First, we conducted a systematic review of all available original studies published through May 2011 that provided attributes of clinical trainers as role models. We organized and ranked our list of attributes (e.g., “Knowledge acquisition and clinical thought processes”) according to both the frequency of their occurrence in the included studies, and their importance as indicated in these studies.

In the second stage, we combined like attributes and transformed them into questionnaire items. They were then translated into Dutch (based partly on translations obtained from a Dutch article), adapted to cover all of the identified attributes, and assessed by experts: two clinical trainers, two teachers of GP trainees, two faculty developers of GP trainers, and two researchers (N.v.D., M.W-dW). These 8 experts performed a critical assessment of whether collectively the potential questionnaire items accurately summarized and characterized the original attributes identified through the systematic review. They also considered whether the items were clearly worded and whether they were sufficiently relevant to warrant inclusion in the instrument.

Finally, second-year trainees pre-tested the resulting concept instrument in a focus group setting. In one of two focus groups, the trainees, instructed to consider one of their past clinical trainers, completed the instrument using a five-point Likert scale, whilst freely expressing and discussing their thoughts. Their evaluation did not interfere with the actual testing of the instrument, as the second-year trainees were not working in GP training practices at the time of this study. After adjusting the items according to the second-year trainees’ feedback, we compiled the instrument for testing.

After we finalized the instrument, we asked first- and third-year trainees to complete it during one of their central curriculum sessions. A teacher (who, as mentioned, is not the clinical trainer) proctored the session to ensure that
trainees would work independently as they assessed their clinical trainers as role models, and a research assistant collected the questionnaires.

**Analysis**

We applied the three-step development process described above in order to evaluate the content validity\(^\text{24}\) of the role model assessment instrument. We performed other tests, as described below, to examine the relationship between items, reliability, convergent validity, and known-group comparison on the instrument. We performed all data analyses using SPSS 16 (SPSS Inc, Chicago, Illinois, USA).

To test for relationships between items, we conducted a principal component analysis. We verified the sampling adequacy by calculating the participant-to-item ratio and using the Kaiser-Meyer-Olkin measure. We assessed multicollinearity examining the determinant (R) of the R-matrix, and we evaluated the correlation between variables, using the significance of the Bartlett’s test.

We extracted components using oblique rotation (direct oblimin method). Using a scree plot, we established the number of components that should be retained, and we ran an analysis to obtain components with eigenvalues greater than 1, based on Kaiser’s criterion. We described the relative variance accounted for by each factor. Adopting alpha scores greater than 0.7 as an indication of good reliability, we calculated the Cronbach’s alpha scores in order to assess the internal consistency of the retained components.\(^\text{25}\)

We also asked the trainees to complete the CCTEI\(^\text{14}\) on the same clinical trainer they assessed with our instrument. We used the CCTEI because it contains items that do not interfere with the attributes for role modeling (e.g., “Coaches me on my clinical/technical skills”); because, like our instrument, it was unfamiliar to the respondents; and because it was developed to evaluate clinical faculty and to provide feedback to clinician-educators so they might improve their teaching. The known internal consistency of the CCTEI is high (Cronbach’s alpha = .97).

Using descriptive statistics, we elaborated the scores for both instruments. In comparison with the CCTEI, we determined the convergent construct validity with the Spearman’s rank correlation test. We expected a high correlation
between the CCTEI and the Role Model Apperception Tool (RoMAT) because both instruments evaluate the competence of the clinical trainer for the learning process of the trainee.

According to the method of known-groups comparison, we evaluated the instrument’s ability to discriminate between the less and more experienced trainees using non-parametrical testing (Mann-Whitney U test). Previous studies showed that trainees who recently started their training were more likely to report the importance of personal characteristics and the learning environment, whereas more experienced trainees emphasized the clinical skills and the ability to transfer them.\textsuperscript{2,8,10}

We also thought, given previous studies,\textsuperscript{8,12} that we might detect differences between male and female trainees. While one previous study had identified a significant difference between men and women with regard to ratings for important role model characteristics,\textsuperscript{8} another study\textsuperscript{12} reported no differences.

## Results

### Response

Of all 328 trainees, 279 (85\%) completed instruments; 49 (15\%) of the trainees were absent due to illness, holidays, or having to work in the training practice. Tables 1, 2, and 3 provide an overview of the personal characteristics of the respondents, the clinical trainers they assessed, and the gender concordance of the trainees and trainers.

### Table 2

<table>
<thead>
<tr>
<th>Characteristic: Measure</th>
<th>Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female: No. (% of 294)</td>
<td>100 (34)</td>
</tr>
<tr>
<td>Age: Mean (standard deviation) [range]</td>
<td>51 (±6.9) [34-67]</td>
</tr>
<tr>
<td>Years of experience as a general practitioner: Mean (standard deviation) [range]</td>
<td>20 (±8.1) [4-37]</td>
</tr>
<tr>
<td>Years of experience as a clinical trainer: Mean (standard deviation) [range]</td>
<td>8 (±6.4) [0-30]</td>
</tr>
</tbody>
</table>
Table 3
Gender Concordance of Residents and the General Practice Trainers They Assessed Using the New Role Model Apperception Tool (RoMAT), 2012

<table>
<thead>
<tr>
<th>Trainer / trainee gender concordance</th>
<th>No. (% of 279)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male/Male</td>
<td>41 (15)</td>
</tr>
<tr>
<td>Female/Female</td>
<td>56 (20)</td>
</tr>
<tr>
<td>Male/Female or Female/Male</td>
<td>119 (43)</td>
</tr>
<tr>
<td>Missing</td>
<td>63 (22)</td>
</tr>
</tbody>
</table>

Content and external validity
Our eight experts organized and reviewed role model attributes that we had identified through a systematic review of the literature, reducing the original set of 21 to 20 items, including 3 that they revised. Two focus group sessions involving, respectively, 10 and 8 second-year trainees (13 women and 5 men), resulted in the elimination of 3 items, the acceptance of 10 items with no change, the reformulation of 4 items, and (to increase their clarity) the addition of a few words to 3 other items. This three-step development process yielded a final instrument consisting of 17 items, comprising 5 items on personal (heart) qualities, 6 on clinical (hands-on) qualities, and 6 on teaching (head) qualities—all of which are scored using a 5-point Likert scale. Appendix 1 shows the final Role Model Apperception Tool (RoMAT).
We established external validity by testing the tool on groups from different training institutes in different parts of the country.

Instrument characteristics
Figure 1 lists the mean scores ± the standard deviation (SD) scores for all of the RoMAT items. Individual scores ranged from 1 to 5. Despite the possibility that trainees would provide only socially desirable answers due to fears of negative evaluations by their GP trainers, the respondents used the full range of options.
With a participant-to-item ratio of 16:1 (> 10:1) and a Kaiser-Meyer-Olkin measure of 0.940, we found the sample size adequate. The determinant of the R-matrix was 4.24E-005 (necessary value > 0.00001), thus reducing the risk of multicollinearity. A Bartlett’s test showed a $\chi^2 (136) = 2713.737, P < .001$ indicating that correlations between variables were large enough to perform a principal component analysis. We based the choice for oblique rotation on a high correlation of 0.582 between the two factors after extraction and oblique rotation of the variables. Based on the scree plot and Kaiser’s criterion, two components were extracted, together explaining 56.6% of the variance. The first component (Caring Attitude) clusters items that reflect characteristics of the relationship of trainers to their patients, trainees, and others. The second component (Effectiveness) represents items relating to the ability of trainers to provide their patients and trainees with what they need. Both components include the same number of items for each of the 3Hs (see Table 4). Figure 1 shows the mean scores and SDs for both of the two components.
Table 4

Factors (items) and Rotated Factor Loadings (RFLs) of the Caring Attitude and Effectiveness Components of the new Role Model Apperception Tool (RoMAT)

<table>
<thead>
<tr>
<th>Qualities</th>
<th>Caring Attitude component&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Effectiveness component&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td>Item no. and text RFL</td>
<td>Item no. and text RFL</td>
</tr>
<tr>
<td>(“Hands-on”)</td>
<td>Q2. Conveys empathy for patients .875</td>
<td>Q1. Has excellent clinical reasoning skills .633</td>
</tr>
<tr>
<td></td>
<td>Q3. Communicates well with patients and relatives .753</td>
<td>Q17. Is professionally competent in difficult clinical situations and able to cope with adversity .439</td>
</tr>
<tr>
<td></td>
<td>Q7. Demonstrates enthusiasm for one’s work .616</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Q9. Has a positive interaction with other healthcare workers .417</td>
<td>--</td>
</tr>
<tr>
<td>Teaching</td>
<td>Item no. and text RFL</td>
<td>Item no. and text RFL</td>
</tr>
<tr>
<td>(“Head”)</td>
<td>Q5. Establishes rapport with learners .748</td>
<td>Q15. Is aware of his/her role model status .680</td>
</tr>
<tr>
<td></td>
<td>Q6. Has a positive attitude towards learners .727</td>
<td>Q10. Makes learning exciting and stimulating .584</td>
</tr>
<tr>
<td></td>
<td>Q12. Is available for learners .713</td>
<td>Q4. Understands learners’ needs and is committed to the growth of learners .488</td>
</tr>
<tr>
<td>Personal</td>
<td>Item no. and text RFL</td>
<td>Item no. and text RFL</td>
</tr>
<tr>
<td>(“Heart”)</td>
<td>Q16. Is nice and easy to work with .715</td>
<td>Q14. Has leadership qualities .837</td>
</tr>
<tr>
<td></td>
<td>Q8. Is patient .713</td>
<td>Q11. Has self-confidence .709</td>
</tr>
<tr>
<td></td>
<td>Q13. Is honest and has integrity .642</td>
<td>--</td>
</tr>
</tbody>
</table>

<sup>a</sup> For the Caring Attitude component, the Eigen value is 8.37; the percentage of variance is 32.12; and Cronbach’s alpha is 0.92.

<sup>b</sup> For the Effectiveness component, the Eigen values is 1.25; the percentage of variance is 24.47; and Cronbach’s alpha is 0.84.

Convergent validity and reliability

The reliability of the two components was high. The Cronbach’s alpha score for Caring Attitude was 0.919, and the score for Effectiveness was 0.843 (see Table 4). The CCTEI score indicated significant positive correlation coefficients of 0.662 for Caring Attitude ($P = .01$) and 0.779 for Effectiveness ($P = .01$).

Known-group comparison (see Table 5)

We detected no significant difference in the scores of first- and third-year trainees or in the Effectiveness scores between trainees who had worked only a few years as a physician before starting GP training and those with many years
of experience; however, the Caring Attitude scores of trainees with fewer than 2.5 years of previous experience were significantly higher than those of trainees with more than 2.5 years of experience ($P = .03$). In addition, the scores of first-year trainees were higher than those of third-year trainees, although this difference was not significant. We detected no significant difference between the scores of males and those of females.

Table 5
The Mean Scores Given by Residents in 4 General Practice Programs in the Netherlands Who Responded to the New Role Model Apperception Tool (RoMAT), 2012*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Caring Attitude component</th>
<th>Effectiveness component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean scores (standard deviation)</td>
<td>$P$ value</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td>.54</td>
</tr>
<tr>
<td>Males</td>
<td>4.33 (0.52)</td>
<td>4.09 (0.50)</td>
</tr>
<tr>
<td>Female</td>
<td>4.27 (0.55)</td>
<td>4.02 (0.56)</td>
</tr>
<tr>
<td>Year of training</td>
<td></td>
<td>.06</td>
</tr>
<tr>
<td>Year 1</td>
<td>4.33 (0.54)</td>
<td>4.07 (0.58)</td>
</tr>
<tr>
<td>Year 3</td>
<td>4.22 (0.54)</td>
<td>4.02 (0.50)</td>
</tr>
<tr>
<td>Years of experience</td>
<td></td>
<td>.03</td>
</tr>
<tr>
<td>&lt; 2.5</td>
<td>4.35 (0.59)</td>
<td>4.05 (0.63)</td>
</tr>
<tr>
<td>&gt; 2.5</td>
<td>4.25 (0.51)</td>
<td>4.04 (0.50)</td>
</tr>
</tbody>
</table>

a. The authors measured significance at $< 0.05$; statistically significant values in bold.

Discussion

We developed and tested a valid, reliable tool for assessing and evaluating the role model behavior of clinical trainers: the RoMAT. The RoMAT consists of two components—Caring Attitude and Effectiveness—both of which include an equal number of items addressing personal, teaching, and clinical qualities, indicating that competence in all 3Hs is a condition for positive role modeling.

Although the RoMAT may serve as an instrument to identify educators who exemplify positive role models, characteristics of the trainees have to be taken into account. Our analyses revealed a significant difference in the Caring Attitude
scores between less and more experienced trainees. Previous researchers\textsuperscript{2,8,10} have also observed this difference; just-starting trainees tend to focus on the personal qualities of their clinical trainers and the learning climate, while more experienced trainees tend to concentrate on the professional competence and teaching skills of their clinical trainers. Nevertheless, the greater attention just-starting trainees give to personal characteristics does not fully explain the higher Caring Attitude scores these trainees assigned their trainers. Given that GPs in the Netherlands are free to choose to work as clinical trainers, those who do elect this option are likely to have a caring attitude toward just-starting trainees. This process of natural selection could have caused the relatively high scores on the instrument in general, and on the Caring Attitude score in particular. In addition, given their uncertainty regarding what is to be expected, it seems obvious that just-starting trainees may be very sensitive to their learning environment, as well as to the attitude of their trainers toward others. This sensitivity is in contrast to that of trainees who have more working experience and may focus on their future as independent physicians, thus experiencing a greater need for and attending more to professional skills.

Elzubier and Rizk\textsuperscript{8} conducted a study in a medical school in the United Arab Emirates, and discovered that men assign more importance than women to “friendliness” (which is one item in the Caring Attitude component) as a characteristic for a role model. Elzubier and Rizk anticipated this gender difference because female trainees in Middle Eastern culture are not likely to give their predominantly male role models a high score for friendliness. In their study, women rated nine characteristics (which collectively fall both within the Caring Attitude and the Effectiveness component) as more important than men rated them.

Even though the majority of trainees in our study were female and the majority of trainers were male (Tables 1 and 2), we detected no sex differences in how trainees rated their trainers. Our results are consistent with those of Wright and Carrese,\textsuperscript{12} who also found that gender has no influence on the identification of an excellent role model.

Despite the high correlation between the scores on the RoMAT and the CCTEI ($r = .765$), the CCTEI scores (Mean 3.89 ± SD .502) are lower than the RoMAT
scores are (Mean 4.19 ± SD .509). This difference is significant (t-test, \( P < .001 \)), indicating that the trainees can distinguish between their trainer as a teacher and their trainer as a role model on a trainer assessment, which in turn indicates that the RoMAT may serve as a possible tool for evaluating role model behavior. Furthermore, the trainees evaluated their clinical trainers with varied scores on the RoMAT items; their use of the full range of choices (from 1 to 5 on the Likert scale) indicates the RoMAT’s capacity to reveal positive role modeling.

Given that the CCTEI measures teaching skills, trainees could be expected to assign high scores on the CCTEI for trainers who had attended teach-the-teacher courses. The GP clinical trainers assessed in our study included both new and very experienced trainers (Table 2). As demonstrated by Wright and Carrese,\(^{12}\) the completion of more teaching-training courses is not a condition for being identified as an “excellent” role model. Moreover, as observed by Paice et al,\(^{27}\) regardless of teaching qualities, being a role model depends largely upon what happens when clinical trainers are doing other things (i.e., not explicitly teaching). Because the RoMAT assesses qualities other than those addressed by the CCTEI, the scores can differ significantly.

We initially expected that the RoMAT would discriminate among three domains of qualities: personal, teaching, and clinical.\(^ {9-11}\) As shown in Table 4, however, the three domains are equally divided between two components (Caring Attitude and Effectiveness), thus demonstrating that competence in all 3Hs is a condition for positive role modeling.

**Limitations**
Because completing the RoMAT was voluntary, selection bias is a possibility. The nonparticipation of any trainees who were not satisfied with the role-modeling behavior of their clinical trainers and who refused to participate because they feared the consequences of their evaluations could have had a positive influence on the total scores; however, the scores, reflecting the full range of 1 to 5 on the Likert scale, suggest that this was not the case.
We tested the RoMAT in a primary care setting where only one or two clinical trainers are available for each trainee. All of the GPs in our study voluntary chose to become clinical trainers. Additional research could reveal whether the RoMAT scores of trainees in other clinical settings, especially where multiple role models are available or where trainers have priorities other than working with trainees, would result in other components or in lower or more diverse and discriminating scores.

**Implications for research**

As shown in a previous study, role-modeling behavior can improve after the role model receives feedback on role model assessments. The RoMAT could be similarly used for evaluating and providing feedback to clinical trainers, thus helping them to improve their own role-modeling behavior. Further research is necessary to determine whether improvement would be represented with higher scores on the RoMAT. Wright and colleagues have suggested that education or training, adjusted to address the identified attributes, could improve the clinical trainer’s role model behavior. Therefore, further research may show if integrating targeted role model behavior training into a curriculum for clinical trainers would, as evaluated by trainees using the RoMAT, result in higher scores.

**Conclusions**

The Role Model Apperception Tool (RoMAT) has proven to be a valid and reliable instrument for assessing the role model behavior of clinical trainers. Educational managers, such as program directors, can use the RoMAT to improve clinical trainers’ awareness of their work as role models. Trainees can also use the RoMAT to identify which aspects of their clinical trainers’ professional behavior they should emulate.
References

5. Côté L, Maheux B, Beaudoin C. Role models of residents graduating in family medicine and in different specialties in Quebec. [Les modèles de rôle des finissants en médecine familiale et dans différentes spécialités au Québec.] Can Med Physician. 1997;43:907-913. [In French.]
Assessment of the Clinical Trainer

## Appendix I
### Role Model Apperception Tool (RoMAT)

<table>
<thead>
<tr>
<th>My Clinical Trainer…</th>
<th>CA/EF*</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. has excellent clinical reasoning skills</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. conveys empathy for patients</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. communicates well with patients and relatives</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. understands learners’ needs and is committed to the growths of learners</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. establishes rapport with learners</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. has a positive attitude towards learners</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>7. demonstrates enthusiasm for one’s work</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>8. is patient</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>9. has a positive interaction with other health care workers</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>10. makes learning exciting and stimulating</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>11. has self-confidence</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>12. is available for learners</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13. is honest and has integrity</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14. has leadership qualities</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15. is aware of his/her role model status</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16. is nice and easy to work with</td>
<td>CA</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17. is professionally competent in difficult clinical situations and able to cope with adversity</td>
<td>EF</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

*Components of the RoMAT: Caring Attitude (CA) and Effectiveness (EF)*
Educating the clinical trainer: Professional gain for the trainee?
A controlled intervention study in General Practice

Ria Jochemsen-van der Leeuw
Nynke van Dijk
Wilfried de Jong
Margreet Wieringa-de Waard

Perspectives on Medical Education 2014, accepted for publication,
Abstract

Purpose The aim of this study was to establish whether a ‘teach-the-trainer’ course leads to improvements in, firstly, the knowledge and attitude of clinical trainers and their trainees, and, secondly, the role model behavior of the clinical trainers.

Method A controlled intervention study was performed with GP trainers and GP trainees from four training institutes in the Netherlands. Clinical trainers in the two intervention institutes received two 3-hour training sessions on weight management, focusing on knowledge and attitudes towards obesity, and on conveying the correct professional competency as a positive role model for trainees. This was measured using questionnaires on knowledge, attitude, and role model behavior (the Role Model Apperception Tool; RoMAT).

Results GP trainers showed an increase in knowledge and several characteristics could be identified as being related to positive role model behavior. A small correlation was found between the trainer’s score on the RoMAT and the attitude of the trainee.

Conclusions A teach-the-trainer course in which knowledge, attitudes, and role modeling are integrated proved to be a first step toward improving the knowledge of clinical trainers, but did not result in a measurably better professional outcome for the trainee, maybe due to a more objective level of assessment.
Introduction

Clinical trainers in general practice (GP) participate in continuing professional development (CPD) and faculty development (FD) courses at training institutes for GP specialty training. These educational interventions are expected to improve the quality of trainee-education in clinical practice by way of a cascade effect, representing the transfer of information from course to clinical trainer (Step 1) to training practice (Step 2) and to trainee (Step 3).

This is important because, during their clinical training, trainees are expected to grow into their future role as independent and competent professional physicians capable of providing high-quality patient care. They learn clinical reasoning skills and behavior not only at special teaching moments where the clinical trainer functions as a teacher and mentor, but also during everyday practice when they observe their clinical trainers as role models in the clinical workplace. Stegeman emphasizes that role modeling is a major means of clinical workplace learning. Bandura, in his social learning theory, explains learning by observation through modeling (Figure 1). By adding the step of ‘apperception’ (the process whereby the perceived qualities of the trainer are related to past experiences) to this process, trainees can assess the role model behavior of their trainers more consciously (Figure 1).

![Figure 1. Model based on the social learning theory according to Bandura, supplemented by the steps of apperception (by using the RoMAT) for the trainee and amplification of the role model behavior for the trainer.](image-url)
In order to ‘amplify’ their role model behavior, clinical trainers need to develop role modeling awareness and to be explicit about what they are modeling. To prepare clinical trainers for their roles as teachers and role models, they receive structural training in both medical content and didactic topics. It is unknown, however, whether both these elements are conveyed by the trainers to their trainees, and which characteristics of the trainer influence this process.

It is known that ‘teach-the-teacher’ courses focusing on didactic skills result in better teaching/coaching behavior, and are therefore beneficial for trainees. Consequently we may expect that training for clinical trainers that focuses on knowledge and attitudes regarding a medical subject, with training in conveying knowledge and an appropriate professional attitude to the trainee as a positive role model, may also improve the professionalism of the trainer and how this is conveyed to the trainee.

The research questions of this study were therefore the following:

a. Does a teach-the-trainer course addressing the knowledge, attitude and the role model function of the trainer lead to an improvement in the knowledge and attitude of both the trainer (Step 1 of the cascade) and the trainee (Step 3), and in the role model behavior of the trainer (Step 2)?

b. Which characteristics of the trainer/trainee are related to larger improvements in knowledge, attitude, or role modeling scores? (Step 1 and 2)

c. Does positive role model behavior by the trainer affect the performance of the trainees? (Step 3)

**Method**

This study was performed as a controlled intervention study, with a training course serving as the intervention.

**Context**

GP trainers in the Netherlands spend four days a week supervising GP trainees in their own practices during the first and third years of the three-year GP training programme. In their second year, trainees work in a variety of clinical settings, supervised by clinical trainers. Trainees spend one day a week, and trainers eight days a year at one of the eight institutes for GP speciality training, where they
are taught by GPs and behavioral scientists (both to be referred hereafter as ‘teachers’). This ‘training for trainers’ consists of half-day or full-day courses that aim to improve the competences of the trainer, thereby assuming to improve the clinical training given to trainees.

Participants
GP trainers and their trainees at four institutes for GP speciality training participated in this study. The intervention groups were located in Amsterdam (mandatory participation) and Nijmegen (voluntary participation), and the control groups in Leiden and Maastricht. The participants were approached between January and September 2012. We included the control groups to correct for any changes in knowledge and attitudes attributable to publicly available information published during the study period.

All participants were informed about the nature of the study, that participation in the study (not training) was voluntary, and that questionnaires would be coded in order to prevent responses from being traceable to individual respondents. The trainers and trainees signed informed consent forms. These forms and other identifiers were stored in a locked cabinet by the head of the research department (MWdW). Ethical approval for this study was obtained from the Ethical Review Board of the NVMO (Dutch Association for Medical Education).

Intervention
We organized a combined CPD/FD course introducing a new self-management method for the treatment of obesity.

The aim of the training course was, firstly, to acquire knowledge about obesity and its treatment, secondly, for participants to become aware of their own attitude toward overweight patients, and, thirdly, to emphasize the importance of conveying knowledge and the correct attitude to trainees by serving as positive role models. The training took place in groups of 15-20 trainers and consisted of three hours of education at the start of the intervention and three hours three months later. The duration was the same as standard GP training courses in the Netherlands, taking into account the limited available time for CPD due to the demanding responsibilities of general practice in terms of patient care. However, several previous studies had shown that six-hour teaching skills courses significantly improved residents’ teacher ratings.\textsuperscript{20,21}
Chapter 5

The training course comprised interactive presentations, peer discussion about case histories and statements, self-reflection regarding attitudes and exercises aimed at practising how to convey professional competencies to trainees. All participants received the necessary materials, such as booklets for patients, to enhance implementation in daily practice. We used these mixed didactic and interactive training sessions because a previous review showed that these can improve professional practice and health care outcomes, provided the focus is on outcomes that are likely to be perceived as serious.22

We chose the subject of weight management because of its importance in preventing health problems in patients.23,24 However, GPs are still unsure about implementing this policy. Trainees therefore experience serious difficulties in becoming competent in this subject since they are influenced by the negative role model behavior of clinical trainers.25 New guidelines for GPs in the Netherlands were published on this subject shortly before the intervention,26 and a new evidence-based27 intervention was introduced for weight management in GP practice (the Minimal Intervention Strategy for Obesity28), addressing the barriers to implementing weight management29 using booklets for patients. All this led to the assumption that an intervention focusing on weight management would fulfil the learning needs of trainers and trainees, and could lead to significant improvements in terms of knowledge and attitudes, and possibly bring about changes in behavior in this area.

Outcome measures
To evaluate the study we used questionnaires on:

• Characteristics. We asked the participants to record the characteristics of their practices and themselves, especially their weight and weight-change in the previous year, as these influence motivation and self-efficacy in treating patients with obesity.30-32

• Knowledge. We designed a questionnaire consisting of 40 multiple-choice questions (the minimum for a reliable MCQ exam33) on weight management. We designed three equivalent questionnaires to ensure that each participant would complete an alternative list of questions every time. The questions were based on GPs’ guidelines on obesity26,34-36, and reviewed by two experts.
• Attitudes. We translated an instrument measuring attitudes toward weight management, using forward–backward translation. This self-assessment instrument, consisting of 20 items scored on a 5-point Likert scale, with higher scores representing a more positive attitude, has not been formally validated, but has already been used successfully in previous studies.37,38 (Appendix 2)

• Role modeling. We developed and validated a tool for assessing the role model behavior of clinical trainers: the Role Modeling Apperception Tool (RoMAT)39 (See Chapter 4, Appendix 1). This tool was developed on the basis of a systematic review of the literature9 aimed at identifying the attributes of good role models. It consists of 17 items scored on a 5-point Likert scale, split into two components: ‘Caring Attitude’ and ‘Effectiveness.’ Both components include an equal number of items addressing personal, teaching, and clinical qualities, with high reliabilities (Cronbach’s alpha .92 and .84, respectively). To evaluate the extent to which the trainers were aware of their role model behavior, we also asked the GP trainers to score themselves, and the trainees to score their trainers as role models using a 5-point Likert scale.

• Behavior. We asked trainers and trainees whether they discussed the subject of the intervention and whether they used the booklets in their practice as an objective measurement of implementation in daily practice.

Assessment (Figure 2)
The GP trainers at the intervention institutes completed questionnaires on knowledge and attitude three times: before the intervention (T1), immediately after the intervention (T2), and three months after the intervention (T3). The GP trainers at the control institutes completed these questionnaires only at T1 and T3, since no change was expected in the scores at T2 without an intervention. All the trainees completed two questionnaires assessing their own knowledge and attitude, as well as the role model behavior of their clinical trainer, at T1 and T3. Trainers and trainees answered the questions on practice behavior only at T3.
Analyses

Data analysis was performed using SPSS version 20 (IBM SPSS Statistics, IBM Corp., Armonk, NY, USA). We used descriptive statistics to report the characteristics of the participants and training practices.

a. We analyzed the change in scores in the intervention groups with a repeated-measures design, and compared the scores of the intervention and control groups using a one-way ANOVA. We calculated the effect sizes for all comparisons: $ES = (M_i - M_c) / SD_c$.

We calculated the correlation coefficient for the question about being a positive role model.

b. Using one-way ANOVA, we analyzed the influence of the characteristics of the trainer on the increase in their scores and we did the same for the scores of the trainees.

c. We investigated the relationship between the role model behavior of the trainers and the individual test performances of all trainees in the intervention.
group (both the mandatory and voluntary ones) using Pearson’s correlation coefficient $r$ at T3. Using univariate linear regression, we analyzed the influence of role modeling by the GP trainer on the T3 scores of the trainees. Finally, to investigate the two items on behavior, we used McNemar’s test for the question of discussing the subject and descriptive statistics for the question of distributing the booklets.

Results

Response
Only the GP trainers who attended the central curriculum days participated, and not every participant was present on all days: 184 (75%) GP trainers participated in the mandatory group, 25 in the voluntary group, and 171 (67.1%) trainers in the control group. The characteristics of the respondents and their practices varied in each group. (Tables 1a and 1b)
Table 1a
Personal characteristics of the respondents

<table>
<thead>
<tr>
<th></th>
<th>Trainers (n=380)</th>
<th>Trainees (n=307)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intervention mandatory</td>
<td>Intervention voluntary</td>
</tr>
<tr>
<td>Respondents (No.)</td>
<td>(184)</td>
<td>(25)</td>
</tr>
<tr>
<td>present on: %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>69.0</td>
<td>92.0</td>
</tr>
<tr>
<td>T2</td>
<td>47.8</td>
<td>48.0</td>
</tr>
<tr>
<td>T3</td>
<td>65.2</td>
<td>72.0</td>
</tr>
<tr>
<td>T1+2 or T2+3 or T1+3</td>
<td>72</td>
<td>89</td>
</tr>
<tr>
<td>T1+2+3</td>
<td>36</td>
<td>50</td>
</tr>
<tr>
<td>Age in years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>50.6 (7.1)</td>
<td>53.2 (6.8)</td>
</tr>
<tr>
<td>Gender: %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>42.4</td>
<td>20.0</td>
</tr>
<tr>
<td>BMI: kg/m²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>24.4 (2.7)</td>
<td>24.3 (2.0)</td>
</tr>
<tr>
<td>Weight change kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>-0.05 (2.8)</td>
<td>0.08 (1.7)</td>
</tr>
<tr>
<td>Training year of trainee: %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>55.4</td>
<td>36.0</td>
</tr>
<tr>
<td>Third</td>
<td>43.5</td>
<td>60.0</td>
</tr>
<tr>
<td>No. of years' experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>18.7 (8.4)</td>
<td>22.8 (7.6)</td>
</tr>
<tr>
<td>No. of years' experience</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>7.3 (5.7)</td>
<td>11.2 (5.2)</td>
</tr>
<tr>
<td>Number of: %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>One</td>
<td>16.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Two</td>
<td>26.6</td>
<td>24.0</td>
</tr>
<tr>
<td>Three or more</td>
<td>26.1</td>
<td>60.0</td>
</tr>
<tr>
<td>Health centre</td>
<td>25.0</td>
<td>8.0</td>
</tr>
</tbody>
</table>
Table 1b
Characteristics of GP training practices

<table>
<thead>
<tr>
<th></th>
<th>Intervention mandatory</th>
<th>Intervention voluntary</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients in practice: %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2000</td>
<td>17.9</td>
<td>32.0</td>
<td>9.4</td>
</tr>
<tr>
<td>2000-2500</td>
<td>29.3</td>
<td>44.0</td>
<td>34.5</td>
</tr>
<tr>
<td>&gt;2500</td>
<td>51.1</td>
<td>20.0</td>
<td>52.0</td>
</tr>
<tr>
<td>Location of practice: %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Village</td>
<td>17.9</td>
<td>32.0</td>
<td>32.2</td>
</tr>
<tr>
<td>Small town</td>
<td>9.2</td>
<td>4.0</td>
<td>12.3</td>
</tr>
<tr>
<td>City</td>
<td>29.3</td>
<td>28.0</td>
<td>29.8</td>
</tr>
<tr>
<td>Big City</td>
<td>42.4</td>
<td>28.0</td>
<td>22.8</td>
</tr>
<tr>
<td>Trainer/trainee couples: %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>♂ + ♂</td>
<td>13.8</td>
<td>40.0</td>
<td>21.7</td>
</tr>
<tr>
<td>♀ + ♀</td>
<td>32.5</td>
<td>20.0</td>
<td>17.4</td>
</tr>
<tr>
<td>♂ + ♀/♂ + ♀</td>
<td>53.6</td>
<td>40.0</td>
<td>60.8</td>
</tr>
</tbody>
</table>

a. Improvements in knowledge, attitudes, and role model skills (Table 2)
In both intervention groups, knowledge scores increased significantly, and persisted to T3 (Step 1). Because of the small number of participants in the voluntary intervention group, their results were omitted from the comparative analyses. The knowledge scores of the trainees in the control group at T3 were significantly (p .02) higher than those of the intervention group, but the effect size (.37) was of little significance.\(^4\) (Step3)
There was no correlation (r -.010, p=.94) between the rating of the GP trainer and the rating of the trainee on the general question of whether the trainer was a positive role model. Conversely, the ratings of the trainees on the role model question correlated positively with the scores of the same trainees on the ‘Caring Attitude’ (r .54, p<.001) and ‘Effectiveness’ (r .63, p<.001) components. (Step 2).
Table 2
Mean scores on the questionnaires of trainers and trainees; score differences between T1 and T3 on knowledge, attitude and role modelling for each group; effect sizes for the differences between intervention and control groups

<table>
<thead>
<tr>
<th></th>
<th>Trainers Intervention mandatory</th>
<th>Controls</th>
<th>Intervention voluntary</th>
<th>Trainers Intervention mandatory</th>
<th>Controls</th>
<th>Intervention voluntary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Knowledge</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean (SD)</td>
<td>16.5 (3.8)</td>
<td>15.9 (3.0)</td>
<td>16.2 (3.7)</td>
<td>15.1 (3.7)</td>
<td>15.5 (3.5)</td>
<td>14.9 (4.4)</td>
</tr>
<tr>
<td>- Mean Δ¶</td>
<td>1.5</td>
<td>0.8</td>
<td>2.8</td>
<td>0.3</td>
<td>1.4</td>
<td>2.2</td>
</tr>
<tr>
<td>- p Δ¶(Int-Cont)</td>
<td>0.00*</td>
<td></td>
<td>0.02*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ES†</td>
<td>0.81</td>
<td></td>
<td>0.37</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Attitude</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean (SD)</td>
<td>3.3 (0.2)</td>
<td>3.3 (0.2)</td>
<td>3.3 (0.3)</td>
<td>3.3 (0.3)</td>
<td>3.3 (0.2)</td>
<td>3.3 (0.2)</td>
</tr>
<tr>
<td>- Mean Δ¶</td>
<td>0.1</td>
<td>0.0</td>
<td>0.4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td>- p Δ¶(Int-Cont)</td>
<td>0.15</td>
<td></td>
<td>0.43</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ES†</td>
<td>0.50</td>
<td></td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RoMAT Caring Attitude</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean (SD)</td>
<td>4.3 (0.6)</td>
<td>4.3 (0.5)</td>
<td>4.4 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean Δ¶</td>
<td>0.0</td>
<td>0.0</td>
<td>-0.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- p Δ¶(Int-Cont)</td>
<td>0.87</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ES†</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RoMAT Effectiveness</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean (SD)</td>
<td>4.1 (0.5)</td>
<td>4.0 (0.6)</td>
<td>4.2 (0.5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mean Δ¶</td>
<td>0.0</td>
<td>0.1</td>
<td>-0.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- p Δ¶(Int-Cont)</td>
<td>0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- ES†</td>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¶ Change in score T3-T1
Int=Intervention Cont=Controls
† Effect Size=Mean  
Without effect size calculation, it can be challenging to assess the significance level for these comparisons.

* Significant differences at p < 0.05
b. Influence of the respondents’ characteristics
Although no clear pattern emerged from the data, there were a few significant effects of characteristics on the change in scores ($\Delta T3-T1$) of the GP trainers (Table 3). GP trainers who had recently lost weight, improved their knowledge more than those whose weight was stable or increasing\(^{30,31}\), showing that a topic with personal relevance motivates learning. Also, less experienced GP trainers improved their attitude more than experienced trainers, while more experienced trainers improved their role model behavior in the ‘Effectiveness’ component. By contrast, GP trainers who worked alone in their practices showed better role model behavior in the ‘Caring Attitude’ component than GP trainers who worked in a practice with others. GP trainers with fewer patients in their practices improved more on both the ‘Caring Attitude’ and the ‘Effectiveness’ components, compared with colleagues with over 2500 patients. No significant influence was found of the trainees’ characteristics on their scores.

c. Influence of role model behavior on the trainees
There was a very small, but significant, correlation at T3 between the ‘Effectiveness’ score of the trainers and the attitude score of the trainees, $r = .201$, $p = .027$, indicating that GP trainers with better role model behavior on the ‘Effectiveness’ scale were associated with GP trainees with the highest scores on attitude. Regression analysis with role model behavior as the independent variable and the attitude of the trainee as the dependent variable was significant, but explained only 3.2% of the variance in the attitude of the trainee, $B(SE) = 2.82(.23)$, $p = .027$, showing that high levels of ‘Effectiveness’ in the role model behavior of GP trainers have a small effect on the attitude of their trainees. (Step 3)

There was a discrepancy between trainers and trainees concerning the question whether the trainers discussed the subject of the training course (43.6% versus 15.9%, $p<.01$). The trainers and trainees rarely handed out the booklets in daily practice (10.9% and 3.2%). (Step 2)
Table 3
Influence of the characteristics - personal, as a trainer and as a physician - of the GP trainers on the changes in their scores before and after the training, compared with Bonferroni's procedure.

<table>
<thead>
<tr>
<th>Trainers (n=80):</th>
<th>Knowledge Δ¶</th>
<th>Attitude Δ¶</th>
<th>RoMaT Δ¶ Caring Attitude</th>
<th>RoMaT Δ¶ Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P Mean 95%CI</td>
<td>P Mean 95%CI</td>
<td>P Mean 95%CI</td>
<td>P Mean 95%CI</td>
</tr>
<tr>
<td>Weight change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. &lt;0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. =0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. &gt;0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yrs. of experience as trainer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. &lt;6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ≥6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of GPs in practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ≥3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Health centre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of patients in practice</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. &lt;2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. 2000–2500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ≥2500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¶ Change in score T3-T1
* Significant differences at p < 0.05 Bf = Bonferroni
Discussion

A combined CPD/FD course for GP trainers on weight management and their role model function, with the aim of transferring professional competencies as a physician, teacher and role model, resulted in knowledge gains among the GP trainers, even measured using an objective examination and pre-, post-, and delayed post-tests, when compared with a control group. (Step 1) The characteristics that influenced the role model behavior of the trainers were whether or not they were experienced, the number of patients in the practice and whether the GP trainers practised alone or in partnership. (Step 2) Only a few GP trainers and a very low percentage of the trainees reported using the booklets, indicating restricted use of the information from the training course in daily clinical practice (Step 2), and there was no improvement in trainees’ knowledge or attitude. Finally, a small correlation was found between trainers with better role model behavior on the items on the ‘Effectiveness’ scale and trainees with the highest scores on attitude. (Step 3)

Strengths and limitations of the study
The strength of this study lies in the evaluation of the intervention, which was based on an objective measurement of knowledge, completed in the presence of a teacher to ensure objectivity, and we evaluated the role model behavior of the trainers using the scores of their trainees.\textsuperscript{12-14} Furthermore we measured the effects of the intervention on the trainees and we evaluated the implementation in daily practice by counting the number of booklets handed out.

There are also limitations to this study. Firstly, there is some doubt about the generalizability of the study. Generalizability was improved by conducting the study in four unrelated training institutes located in different parts of the country to minimize local influences. Although the number of participants in the voluntary intervention group was small, the results from this group showed the same pattern as the results in the mandatory intervention group, thus affirming the value of the properties found.

To reduce the chance of educational interventions at one institute affecting the results of our comparison, we used the GP trainers and trainees at two institutes as controls. With a response of 75% in the mandatory group and 67% in the control group, our group of participants seems fairly representative.
Secondly, we found differences in characteristics between the groups. These may have been due to the location of the practices.

Thirdly, a large number of GP trainers failed to follow-up because the attendance of trainers at central curriculum days fluctuated widely; they were often required to work in their practices, shared their presence at training days with co-clinical trainers, or had other obligations.

Finally, only 25 GP trainers chose weight management from a list of different topics and volunteered for the intervention. Previous studies have indicated that GP trainers are not convinced that the treatment of overweight patients is meaningful, which could explain this finding.\(^25,43\)

**Comparison with existing literature**

Several previous CPD/FD studies\(^{15, 17-19}\) have integrated clinical content with learning about educational methods in voluntary courses for clinical trainers, using different teaching methods; all had positive results, including behavioral changes. Because of the clinicians’ reported lack of time, two courses were, like our training course, short (2-4 hours).\(^{15,18}\) The results of these studies were based on self-reporting after the course and three months later. (Step 1) None of these studies used more objective outcome measures or evaluated the course in the target population, (the trainees) or used control groups. As with our findings, one study showed that trainers did not use the written information distributed on the course for their own patients.\(^{15}\) Another study showed that clinicians routinely overrated their skills and knowledge in self-evaluations, using retrospective pre-programme scores.\(^{19}\) In our study there was no correlation between the judgment of the trainers regarding whether they were a positive role model and the scores given by their trainees on the RoMAT. There would appear to be a discrepancy between the trainers’ own assessment of their capacities and the observations of the trainees.

Consequently, our limited positive findings may be due to the fact that, instead of relying on the possibly overoptimistic self-evaluation by the trainers\(^{44}\), we used a more objective means of assessment: objective measurements amongst trainers and trainees, measurements in the training practice, and evaluation of the trainers by the trainees. (Step 2)

Some of the characteristics of the trainers appear to influence role model behavior. Being more experienced had an influence on the ‘Effectiveness’ scores,
implying that being more experienced relates with the ability to meet the learning needs of trainees. Meanwhile, trainers who work alone and were not distracted by colleagues in their practice showed better role model behavior on the ‘Caring Attitude’ component, thus appearing to be more open toward their trainees. Higher patient numbers in practices (i.e. busier physicians) reduced both scores, leading to less positive role model behavior. Previous studies found that reserving time for the trainee is a requirement for positive role modeling.

The aim of the CPD/FD course, of improving professional competences of the trainee through a cascade effect, was not achieved. Although the first step, that of improving the clinical, teaching and role modeling competences of the trainer, was partly achieved, only a small effect was found for the influence of positive role modeling, and no significant effect on practice behavior, handing out the booklets. Various reviews have discussed quality and composition as factors in the effectiveness of the CPD/FD course. Our study showed that there is a greater loss of competences after the first step, from trainer to training practice and to trainee.

The absence of any knowledge gains on the part of trainees could be explained by the discrepancy between trainers and trainees regarding the question whether the trainers discussed the subject of the training course, implying an overestimation by the trainer and therefore less of a focus on conveying knowledge or, even more importantly, poor receptiveness by the trainee if the topic was not of interest to them at that point in their training. However, the lack of improvement in attitudes toward weight management in our study was in line with previous studies that used the same questionnaire or the same line of questioning. This trend seems to imply that education and the acquisition of more knowledge do not necessarily lead to a better attitude. Finally, although positive role modeling seems to be related to more positive attitudes among trainees, no improvements in role model behavior could be established and thus no effect on the achievement of the trainee. This may originate from the discrepancy between the trainers’ and the trainees’ evaluation of the trainer as a positive role model. An overestimation of their own positive role modeling may have led to trainers not being motivated to improve their role model behavior, but also shows the necessity of feedback from trainees on the role modeling of trainers. (Step 3).
Conclusions

Our study analyzed the effects of a CPD/FD course for clinical trainers, by surveying the target population, the trainees. The course integrated knowledge, attitudes, and role modeling, and proved to be a first step toward improving the knowledge of the trainer, but did not result in improved overall professional outcomes for the trainees. Some of the characteristics of the clinical trainer did influence their role model behavior and there was a small correlation between more positive role model behavior and positive attitudes among trainees.

Implications for future courses and research
More research is necessary to establish how to improve the effectiveness of train-the-trainer courses, encouraging clinical trainers to maximize their awareness of conveying knowledge and modeling the correct behavior, as well as to determine how to maximize the professional gains for trainees and evaluate such training objectively in the training practice and target population.
Educating the clinical trainer

References

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Appendix 2

Physicians’ attitudes towards obesity treatment\textsuperscript{18,39}

<table>
<thead>
<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I believe it is necessary to educate obese patients on the health risks of obesity</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>Obesity is a chronic disease</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>I make accommodations for obese patients</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Obesity is associated with serious medical conditions</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>Physicians should be role models by maintaining a normal weight</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6</td>
<td>A 10% reduction in body weight is sufficient to significantly improve obesity-related health complications</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>I would spend more time working on weight management issues if my time was reimbursed appropriately</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>I feel competent in prescribing weight loss programmes for obese patients</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9</td>
<td>Most obese patients are well aware of the health risks of obesity</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>Medications to treat obesity should be limited to short-term (&lt;3 months) use</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Most obese patients could reach a normal weight (for height) if they were motivated to do so</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12</td>
<td>Most obese patients will not lose a significant amount of weight</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>I have negative reactions towards the appearance of obese patients</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14</td>
<td>If a patient meets the appropriate criteria for obesity surgery, I would recommend an evaluation by a surgeon</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>Medications to treat obesity should be used chronically</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16</td>
<td>I am usually successful in helping obese patients lose weight</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17</td>
<td>For most obese patients, long-term maintenance of weight loss is impossible</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18</td>
<td>It is acceptable to use ‘scare tactics’ to obtain compliance of the obese patient</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19</td>
<td>I feel uncomfortable when examining an obese patient</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20</td>
<td>It is difficult for me to feel empathy for an obese patient</td>
<td>I</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Chapter 6

Learning from a role model: A cascade or whirlpool effect?

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Nienke Buwalda
Margreet Wieringa-de Waard
Nynke van Dijk

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Abstract

Background To amplify clinical, teaching and personal qualities and become a more competent role model in the master-apprentice relationship in workplace-based learning, CPD (continuing professional development) and FD (faculty development) courses have been designed in the expectation that a cascade effect will occur: the conveyance of information from course to clinical trainer to daily practice and/or to trainee by means of the role model function.

Purpose The aims of this study were to gain insight into the factors that encourage clinical trainers to incorporate what they have learned in CPD/FD into their role model function and factors that influence conveyance from master to apprentice.

Method We conducted a qualitative study using semi-structured interviews with GP trainers and their trainees.

Results Twenty-four GP trainers who completed a CPD course, and sixteen of their trainees participated. The analysis of their statements enabled the identification of factors that affect the amplification of the competences of the clinical trainer, his or her awareness of being a role model, applicability in training practice and conveyance of competences to the trainee.

Conclusions As a result of interaction between trainer, trainee and patient, the conveyance of competences from master to apprentice seems to be better represented by a whirlpool rather than a cascade, with the influential factors and interactions functioning as filters, causing a decline in the effectiveness of the CPD/FD. Using the filters as turning-points for improvements around the whirlpool could improve the effectiveness of CPD/FD courses.
Introduction

In clinical workplace learning, clinical trainers function not only as teachers, mentors and coaches, but also as role models for the trainees\textsuperscript{1,2} and thus as the master in a master-apprentice relationship.\textsuperscript{3} By using this master-apprentice relationship while working alongside a general practitioner (GP) trainer in his or her own practice, trainee GPs are expected to make the transition from a recently graduated student to a professional GP capable of providing high-quality patient care.\textsuperscript{4}

Previous studies have shown that integrating clinical, teaching and personal qualities is a prerequisite for positive role modeling.\textsuperscript{5,6} According to Wright et al., education could enhance the role model function of the GP for the trainee, optimizing the quality of learning in clinical practice.\textsuperscript{7,8}

To amplify these clinical, teaching and personal qualities and become a more competent master within the master-apprentice relationship, CPD (continuing professional development)\textsuperscript{9-15} and FD (faculty development)\textsuperscript{16-18} courses are designed in the expectation that a cascade effect will occur (Figure 1). This cascade effect represents how information is transferred from course to clinical trainer to daily practice and to trainee through role modeling.

![Figure 1. The Cascade effect](image-url)
Various courses using CPD combined with FD\textsuperscript{19-22} as the first step of the cascade have shown positive results when results are assessed using self-reported evaluations. Single CPD courses can also improve clinical qualities when the correct didactic techniques are used.\textsuperscript{6-12} In addition, systematic reviews\textsuperscript{13-15} summarizing studies on the effectiveness of single FD courses have shown improvements in the competencies of the clinical trainer as a teacher. The first step in the cascade thus seems to work effectively.

The second step of the cascade comprises applying the acquired competences as a role model and a master for the apprentice and, as part of that process, conveying the new knowledge acquired as a teacher to the trainee in the training practice. However, after single CPD courses, improvements in physician performance and patient outcomes were small.\textsuperscript{11-14} Evaluations of the effectiveness of single FD courses in terms of student ratings or examination scores are rare and show little or no effect.\textsuperscript{16,18} Consequently, Steinert and colleagues\textsuperscript{16} emphasize the conditions which must be met when developing FD for trainers to raise the awareness of their role as teachers. Wright\textsuperscript{8} extends this last item by highlighting the need of to make trainers aware of their role model function too.

Confirming the limited effectiveness of CPD or FD courses in the target population\textsuperscript{10,13,16-18} our teach-the-trainer course,\textsuperscript{23} which integrated knowledge and attitudes regarding treatment of obesity (CPD) and role modeling (FD), did result in an objective gain in the knowledge of the GP trainers, but no improvement in the attitudes or the role model behaviors of the trainers as assessed by the trainees, and no improvement either in the knowledge or the attitude of the trainees, the third step of the cascade. These limited findings can be explained by the fact that they were evaluated using formal tests among trainers and trainees, and by measuring the role model behavior of trainers through trainees rather than relying on – possibly overestimated – self-evaluations by the trainers.\textsuperscript{21,24}

These findings demonstrate that increased competences does not cascade downwards to reach trainees and clinical practice. Improving our understanding of the factors that influence this process could help to increase the effectiveness of CPD/FD courses.
The aims of this study were therefore the following:
• to understand the factors that affect the extent to which clinical trainers incorporate what they have learned during CPD/FD courses. (Step 1)
• to understand which factors influence the conveyance of new knowledge and behavior from master to apprentice after CPD/FD courses. (Step 2)
• to identify the extent to which there is concurrence between the statements of trainers and trainees about the effectiveness of CPD/FD for clinical training practice. (Step 3)

Methods

Context
In the Netherlands, GP trainers supervise, in their own practice, trainees in the first and third years of their three-year GP specialty training. The trainees also follow a central curriculum one day a week at one of eight institutes for GP specialty training. Their trainers attend eight training days a year for CPD/FD courses at the same training institute, in the expectation that these educational interventions will improve the quality of training for the trainees in clinical practice.

To study this cascade effect, we evaluated an interactive course on role modeling for obesity treatment, integrating knowledge of a medical subject with the GP's own attitude towards this subject and the importance of conveying knowledge and an appropriate attitude to their trainees. This training was attended by 184 trainers in 2012. We chose the subject of weight management because many GP's doubt the effectiveness of weight management and trainees therefore experience difficulty in becoming competent in this subject. New guidelines for general practice were recently issued and a new intervention became available, reinforcing the need for education on that subject. To enhance the implementation of this new intervention, we distributed booklets on the intervention for patients.

The CPD course consisted of two three-hour sessions of mixed didactic and interactive training sessions spaced three months apart (Figure 2), representing the usual duration of CPD courses for trainers, with a follow-up three months after the course. The effectiveness of the course was assessed by means of self-
evaluation of the trainers’ and trainees’ own attitudes and an objective examination
of knowledge acquired by trainers and trainees, as well as an assessment of the
trainers’ role model behavior by the trainees. An increase in the knowledge of the
GP trainers was established, but no improvement in the role model behavior of
the trainers was observed, nor was an improvement in the knowledge or attitude
of the trainees observed.

In 2013, nine months after starting the CPD course (Figure 2), trainers attending
a central curriculum day at the training institute of the University of Amsterdam
were invited for a telephone interview at an appointed time. Their trainees were
later also approached by telephone for an interview.

Figure 2. Schematic representation of the assessment

Participants

GP trainers who attended the CPD course and accepted our invitation
participated in the study, along with their respective trainees. All the participants
were informed that participation was voluntary, and that their interviews would
be coded to prevent responses being traceable to individual participants.

The GP trainers and trainees signed informed consent forms. Ethical approval for
this study was obtained from the Ethical Review Board of the Dutch Association
for Medical Education (NVMO).

Design

We conducted a qualitative study using semi-structured interviews with
GP trainers and their trainees to explore the factors underlying CPD/FD
implementation in the master-apprentice relationship. The questions for this
semi-structured interview were designed on the basis of the results of previous
studies.\textsuperscript{23,25}

To evaluate whether the course succeeded in amplifying the competences of the
clinical trainers, participants were asked if they had gained knowledge, changed
their attitude, were able to apply the competencies acquired in daily practice
and why (or why not), whether and which competences they had conveyed to their trainees and whether their trainees were able to apply these competencies in the training practice. Finally, they were asked to evaluate the content of the training sessions. The trainees of these trainers were asked whether the trainer had conveyed new competences and in which context, whether they had gained knowledge or changed their attitude, whether they were inspired by their trainer and to what extend they were able to use this new information when treating their patients.

Data collection and analysis
One researcher (NB) conducted the interviews with the clinical trainers and one research assistant (NJRL) conducted the interviews with the trainees by phone. This design was used so that the interviewer of the trainees would not be biased by the statements of the trainers and vice versa. All interviews were audio-recorded and transcribed verbatim. Two researchers (NB and HGAJL) analyzed the data independently using conventional content analysis. Using open coding we were able to subdivide the answers into the categories that emerged from the data. Consensus about the categories and subdivision of the answers was reached in three meetings.

Results
Twenty-four trainers participated, 14 males and 10 females, aged 39-63 years (mean 53.3 years). Sixteen trainees, 2 males and 14 females, aged 28-36 years (mean 31.4 years) participated. One trainee had two trainers and seven trainees failed to participate: three trainees failed to give informed consent in written form, so their answers were excluded, one trainee refused to participate and three trainees could not be reached because they had already graduated. The interviews lasted approximately 10-15 minutes. For the statements illustrating the results, see Table 1. The statements were organized into five categories emerging from the data.

1. Amplification
The factors affecting the amplification of the trainer’s competences relating to the training were the following: whether they personally considered the topic
appealing, a clear aim for the course, positive interaction with teacher and peers, and supportive educational materials. Trainers indicated that they had acquired new knowledge or refreshed old knowledge. Sometimes the subject of the course caused resistance, which had to be neutralized before the course could be effective. When the course was too detailed, the trainers lost perspective. Lack of enthusiasm on the part of the teacher was mentioned by several trainers as a reason they did not “take home” the delivered message. Trainers indicated that group dynamics can lead to beneficial discussions.

2. Awareness.
Trainers felt they became more aware of their own attitude and how to help their patients. They tried to make their trainee more aware of their role as a GP in caring for an overweight patient by being more active or enthusiastic themselves or by discussing the subject. Some trainers noticed their trainees having the same negative thoughts about weight management as they have.

3. Applicability
There were some recurring themes in the remarks made about the possibilities for applying the competences acquired in the training practice, relating to the practical applicability of the topic, attention for implementation and integration in daily work during the course. Some trainers who were inspired by the course were nevertheless unable to put the knowledge into practice because they experienced a lack of applicability or it was too much on top of their daily work and they could not fit it in. The trainers therefore asked for more attention how to integrate the content of the course into daily practice, because they could only use what they had learned if they were able to implement it immediately. They would also have liked more information on how to approach patients.

4. Conveyance
The conveyance from trainer to trainee is influenced by the commitment of the trainer, by the receptiveness of the trainee and whether it is on request of the trainee. In their first year of training, trainees are not always capable to incorporate complex knowledge already. The trainee must feel the need for it, otherwise they will not approach the topic. However, a trainee can also serve to inspire a trainer and vice versa; it helps the trainee if the trainer is inspiring, or even demanding.
5. Interaction

Trainer-trainee interaction, as well as trainer-patient or trainee-patient interaction, appears to influence the conveyance from trainer to trainee. Trainers were more willing to convey what they had learned if they considered the information to be important for patients’ health, if it formed part of the treatment of the patient or if the patient asked for it. They were even more willing when the trainee encountered a problem with a patient and discussed this problem with the trainer.

Table 1
Statements illustrating the results.

<table>
<thead>
<tr>
<th>Circle</th>
<th>Factors</th>
<th>Filter</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical</td>
<td>Amplification</td>
<td>Topic</td>
<td>- I was already active in this topic, but the course has strengthened me to continue with this. It gave me the support I needed to continue with it. (Trainer 15)</td>
</tr>
<tr>
<td>Trainer</td>
<td></td>
<td></td>
<td>- Some trainers do not have any feeling with the topic, others say: it is a waste of time, people with obesity will stay obese. (Trainer 20)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aim of CPD/FD  - I found this to be a thorough course. The teacher explained to us why this topic and what the importance of this subject is, and what it means for your role as a GP. (Trainer 22)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- If 25% or 30% of people are obese, it does not matter to me. It did not inspire me, and then the way it was done, I thought: that is not the way I will learn anything, to be honest. (Trainer 7)</td>
</tr>
<tr>
<td>Teacher</td>
<td></td>
<td></td>
<td>- The teacher illustrated the resistance there is to discuss the topic using her own experience, that was funny, she used that very well. (Trainer 23)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- During the first part of the course, maybe due to the teachers, I did not learn any new facts, but it did motivate me to give more attention to obese patients. And the second part was really dull; it did not motivate me at all. I am not sure whether it was caused by the teachers or the group, but the first part was much more motivating. (Trainer 2)</td>
</tr>
<tr>
<td>Peers</td>
<td></td>
<td></td>
<td>- That has more to do with the teaching in general. Because it depends on the group you’re working with and whether you can motivate each other. I prefer to work in the same group each time so that you can get to know each other, that allows me to be more open. (Trainer 11)</td>
</tr>
<tr>
<td>Educational materials</td>
<td></td>
<td></td>
<td>- The booklets for the patient, I found them really interesting, are at my fingertips, but I have not used them yet in caring for a patient. Still I can use them if I need them. (Trainer 16)</td>
</tr>
<tr>
<td>Awareness</td>
<td>Attitude change</td>
<td></td>
<td>- The trainee also notices that you are more actively focused on it. (Trainer 3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Looking at it differently, it’s brought it closer to the surface. Sometimes now it takes less time before the alarm bells start ringing. In any case, it’s more in my thoughts and then at least you have the choice of doing something with the patient. That’s a funny effect for me, I didn’t think that would be the case if I’m honest. (Trainer 13)</td>
</tr>
</tbody>
</table>
Table 1 continued

<table>
<thead>
<tr>
<th>Circle</th>
<th>Factors</th>
<th>Filter</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applicability</td>
<td>Practical applicability</td>
<td>Filter</td>
<td>- Practical information, very useful and I also use it when I’m talking to people who are overweight. For example, what the effects are of certain eating habits. (Trainer 15)</td>
</tr>
<tr>
<td></td>
<td>Integration in daily work</td>
<td>Filter</td>
<td>- I intended, after the course, to become more active in my own practice, but still I had to overcome some barriers. I was enthusiastic, but the daily routine and workload of the practice prevents you from getting started. (Trainer 22)</td>
</tr>
<tr>
<td>Trainee</td>
<td>Conveyance</td>
<td>Receptiveness of trainee</td>
<td>- I certainly think that I can still learn a lot about this. But I think I just didn’t have enough of a need for it at that point… yes, it’s also that in the first year you go deeper into whatever you encounter at that moment in your practice, and if you don’t have much to do with it, then it gets pushed to one side again, but actually I do need it, I should certainly learn more about it but…(Trainee 17)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Request from trainee</td>
<td>- Both GP trainers noticed I was interested and when they completed the course…, it was a combination.” (Trainee 10)</td>
</tr>
</tbody>
</table>
|                 |                          | Enthusiasm of trainer                      | - I talked to the trainee about how you motivate people etc. The trainee didn’t like the subject to start with, but he did warm to it I think. The implementation of an improvement plan is about to start. (Trainer 15)  
- In terms of what was needed for the project and for myself, for me my trainer and all the guidelines there are were sufficient. (Trainee 15)                                                                         |
| Patient         | Interaction              | Importance for health patient              | - It became clear to me in a painful manner how you can miss a stomach problem in someone who is obese. So that was certainly new knowledge. (Trainee 4)                                                                                                                                                                                                 |
|                 |                          | Part of treatment                           | - Actually always in combination with the patients who you see… either it is obvious that the patient is overweight, or it has something to do with the complaints that the patient has, then we do discuss it. (Trainee 13)                                                                                                                                 |
|                 |                          | Question from patient                      | - But there was a girl with obesity who kept coming back, so on the basis of that we talked about bariatric surgery. (Trainee 22)                                                                                                                                                                                                                  |

Comparison between trainer and trainee responses

The responses also allowed a comparison of the answers given by the trainers and the trainees (see Table 2). This showed the (lack of) consistency between the self-reported implementation of the trainers in practice and the statements of the trainees; showing that the trainees were more likely to integrate the subject in daily patient care when the trainer had embedded teaching on the subject in care for the patient and when the trainer had changed his or her own practice performance.
Table 2
Comparison of statements between trainers and trainees regarding the conveyance of knowledge (-) and attitude (=) after the CPD course

<table>
<thead>
<tr>
<th>No.*</th>
<th>Quotes from trainers</th>
<th>Quotes from their trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>-Not in a formal way, not to transfer knowledge</td>
<td>-As part of the treatment of a patient, I learned a new method of treatment</td>
</tr>
<tr>
<td></td>
<td>=More awareness and motivation</td>
<td>=I developed another attitude, how to address the patient</td>
</tr>
<tr>
<td>5</td>
<td>-Discussed it and also the guideline</td>
<td>-A few times when I was worried about a patient</td>
</tr>
<tr>
<td></td>
<td>=How to address the patient, small steps, major influence on health</td>
<td>=nothing changed</td>
</tr>
<tr>
<td>10</td>
<td>-The trainee implemented the subject in a quality project for the practice</td>
<td>-Discussed it as part of the quality project and the treatment of patients</td>
</tr>
<tr>
<td></td>
<td>=Another, easier, treatment, that is important for the patient and helps to convince the patient</td>
<td>=Being more realistic about the results of the treatment helps to address the patient</td>
</tr>
<tr>
<td>12</td>
<td>-Discussed the subject briefly</td>
<td>-As part of the treatment of a patient and how to address the patient</td>
</tr>
<tr>
<td></td>
<td>=Encouraged not to give up and try to find a way to address the patient</td>
<td>=Nothing changed. But it is pleasant to discuss difficult problems with a colleague</td>
</tr>
<tr>
<td>13</td>
<td>-Discussed things with the trainee and handed out the course materials.</td>
<td>-Discussed the things he learned in the CPD course and when it is a part of the treatment or reason for a patient's complaints</td>
</tr>
<tr>
<td></td>
<td>=I am doing more with it and that is permanent, I think</td>
<td>=In that way, I am more aware of it, even when the patient comes for another complaint</td>
</tr>
<tr>
<td>14</td>
<td>-Discussed some things</td>
<td>-Did not discuss the subject a lot</td>
</tr>
<tr>
<td>15</td>
<td>-Discussed the subject with my trainee and the trainee used it for a quality project</td>
<td>-Discussed it a lot, as part of the quality project and the trainer handed me the materials of the CPD course</td>
</tr>
<tr>
<td></td>
<td>=The CPD course gave me the confidence to continue in the way I did</td>
<td>=I pay more attention to the problem</td>
</tr>
<tr>
<td>17</td>
<td>-Handed out the course materials</td>
<td>-Told briefly about the things of the course and handed the materials</td>
</tr>
<tr>
<td></td>
<td>=It is easier and I am more careful in addressing the patient, and I am more aware of the problem for the patient</td>
<td>=I did not change, but I am more evaluating the pros and cons</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>-Discussed it briefly, not in detail. More about the attitude of the trainee. The trainee had an interest in the subject the whole year.</td>
<td>-As part of the treatment of patients, also discussed some literature</td>
</tr>
<tr>
<td></td>
<td>=I think it is a job for the practice nurse, I don’t like to address the patient on this subject, maybe I have to change that</td>
<td>=Nothing changed, I was already interested in the subject</td>
</tr>
<tr>
<td>1</td>
<td>-No knowledge</td>
<td>-Discussed it only with the practice nurse</td>
</tr>
<tr>
<td>6</td>
<td>-Not at all, no questions from the trainee on the subject</td>
<td>-The trainer did not discuss it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>=The trainer did not discuss it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>=No, not much. We refer those patients and do not treat them often ourselves</td>
</tr>
</tbody>
</table>
Chapter 6

From cascade to whirlpool

When we began this study, we followed the current of the supposed cascade (Figure 1). However, the interaction of the trainer with the trainee, and of the trainer and the trainee with the patient seems to exert an adverse influence, thus the decline of professional competences cannot only be explained by a cascade effect. During our analysis it became clear that we had to design another figure to better represent the data: not a straight flow but a circular swirling movement like a whirlpool (Figure 3), with amplification, awareness, applicability, conveyance and interaction as important factors influencing this process.

Discussion

In this qualitative study we analyzed the presumed cascade effect of a train-the-trainer course designed to “amplify” the GP in his or her role as clinical trainer for the trainee in the clinical workplace. In fact, our analysis led to the development of another figure that better represents the data: a whirlpool (Figure 3).

The influences found in this study were partly consistent with the factors that are important for the implementation of CPD courses\footnote{28} or FD courses\footnote{16} in daily practice, which have been mentioned in previous studies. In addition, this study has explored the factors affecting the implementation of a combined CPD/FD

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**N°:** Number of couple of the GP trainer with their GP trainee.

### Table

<table>
<thead>
<tr>
<th>N°</th>
<th>Quotes from trainers</th>
<th>Quotes from their trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>-The only thing that I tried to motivate the trainee&lt;br&gt;=I told the trainee to look into it if it was important for the treatment of a patient</td>
<td>-Not so explicit.</td>
</tr>
<tr>
<td>8</td>
<td>-Did not discuss it&lt;br&gt;=No, I do not act differently</td>
<td>-We did not discuss it, because I choose the subjects for our teaching sessions.</td>
</tr>
<tr>
<td>18</td>
<td>-Have not discussed it yet</td>
<td>-Did not discuss this already in my first year of training</td>
</tr>
<tr>
<td>19</td>
<td>-Had already discussed it before the course&lt;br&gt;=Trainee is already active on this point, we discussed it extensively</td>
<td>-Can’t remember me discussing it</td>
</tr>
<tr>
<td>23</td>
<td>-Discussed it during a teaching session&lt;br&gt;=It was already a point of interest and that did not change</td>
<td>-Can’t remember anything concrete</td>
</tr>
<tr>
<td>24</td>
<td>-Don’t know&lt;br&gt;=No, I was already very active</td>
<td>-Not really, can’t remember</td>
</tr>
</tbody>
</table>

---

*Quotes from trainers

*Quotes from their trainees

-Negative
Learning from a role model

Course, not only in daily practice, but also in terms of role model behavior in the master-apprentice relationship and, as a part of that, in conveying knowledge as a teacher in the training practice to the trainee; a cascade effect. Apart from the factors already known, which can be summarized as amplification and applicability, other factors also appear to influence conveyance from the trainer to the trainee, such as awareness of the trainer’s own attitude and the request or receptiveness of the trainee. Both trainers and trainees mentioned interaction with the patient, especially when implementation is important to the health of the patient.

One might expect a cascade effect to occur if all the conditions are met. Although the self-evaluation for CPD/FD courses is positive (Step 1), the results are less impressive when the effectiveness of courses is assessed by the target population, i.e. the trainees (Step 2) and in clinical training practice (Step 3). On the way down, the cascade effect of CPD/FD courses on the professional competences of the trainer decline, possibly because the factors that influence each step of the cascade function as a filter, hindering the amplification of the competences of the trainer, conveyance to the trainee and applicability in patient care.
care. Additionally, the interaction of the trainer with the trainee, and of the trainer and the trainee with the patient seems to exert an adverse current, and thus the limited effectiveness observed cannot be explained solely by the failure of the cascade effect (Figure 1). Subsequently, the various factors and interaction that influences the conveyance can better be represented by a whirlpool (Figure 3). This is in line with the theoretical findings by O'Sullivan and Irby.

Visualizing the process as a whirlpool rather than a cascade creates an opportunity to influence the swirling circles from different turning-points at the same time, instead of at only one step in the cascade. Rubak and colleagues\(^{28}\) organized a mandatory joint FD course for all trainers and trainees, which had a positive effect on knowledge, teaching skills and the learning environment, also according to the scores of the trainees. This set-up means that the first filter, conveyance from trainer to trainee, is eliminated; it also positively influences the second filter, that of practical applicability, because the trainer and trainee in clinical training practice have the same understanding of the subject at the same time.\(^{28}\) The study of Rubak et al. covered only the first two steps of the cascade and did not reach the last step, which is that of care for the patient in daily practice.

Nevertheless, when the influential factors of amplification, awareness, applicability, conveyance and interaction, which currently function as filters, become turning-points for CPD courses integrated with a focus on FD competences, we might also expect improved effectiveness. Training trainers and trainees on the same topic will positively influence effectiveness, according to Rubak and colleagues. Choosing a topic that is perceived to be important for the health of patients will also reduce the resistance of the trainer and increase the receptiveness of the trainee. Together, this can create an optimal learning environment for the trainer in which CPD/FD competences, such as the awareness of being a role model for the trainee, are transferred and implemented in the training practice, thus improving the effectiveness of all three steps.

When we compared the statements of trainer-trainee couples, the trainers claimed to have covered the topic more often than the trainees. At the other hand, when trainers are active in implementing the topic, then trainees admitted to having experienced a positive change in their behavior, confirming the importance
of amplifying competences and a growing awareness of the role model function of the clinical trainer.

**Strengths and limitations**

In this study we analyzed the effectiveness of the cascade not only using self-evaluation by trainers, but also using evaluation among the target group, i.e. the trainees, and their implementation of competences in patient care. We processed the data using open coding, not using preset categories, in order to understand the underlying factors better. Because GP trainers participated voluntarily, the number of participants was limited and therefore there was a possibility of selection, even though the answers covered a full range, from very negative to very positive.

**Implications for future courses and research**

New CPD/FD courses for clinical trainers should be designed using the relevant factors identified in this study as turning-points. Developing and testing a new gold standard for evaluation will enable future research to combine and compare studies and reveal more factors that influence effectiveness.

**Conclusions**

Incorporating what clinical trainers learn during a CPD/FD course in their role model function for the trainee depends not only on influences on the amplification of their competences, on being aware of their own attitude and on applicability in the daily training practice, but it can also be affected by interaction with trainee and patient.

Consequently, it seems more appropriate to visualize the conveyance from master to apprentice as a whirlpool rather than a cascade (Figures 1 and 3). This creates an opportunity for interventions at more than one turning-point around the swirling circles, in order to simultaneously improve the effectiveness of CPD/FD courses with regard to the role model behavior of the trainer and the conveyance to the trainee in clinical practice.
References


Chapter 7

Feedback on role model behavior: Effective for clinical trainers?

Ria Jochemsen-van der Leeuw
Nynke van Dijk
Margreet Wieringa-de Waard

Submitted for publication
Abstract

Purpose  The aim of this study was to assess changes in role model behavior of the clinical trainer after giving personal feedback.

Method  First year General Practitioner (GP) trainees at two institutes for GP specialty training in the Netherlands were asked to complete an assessment for their clinical trainers: the Role Model Apperception Tool (RoMAT). The RoMAT consists of attributes of positive role modeling divided into two components (Caring Attitude and Effectiveness) and was scored before and after the trainers received their personal scores combined with the mean score of their peers. The trainers were divided into three performance groups: below average, average and above average.

Results  Only the group of trainers with the lowest scores showed an improvement on the Effectiveness component of the RoMAT. This pattern was confirmed by the number of trainers shifting from the group with below average performance to the average and above average performance groups.

Conclusions  Giving feedback to clinical trainers did result in better scores on role model behavior. This outcome seems to indicate that trainees are able to use the RoMAT to distinguish between positive and negative role modeling, and that the role model behavior of the clinical trainer can be improved.
Introduction

In clinical practice trainees develop into competent physicians by working alongside clinical trainers. Besides being teachers, mentors or coaches, clinical trainers are also observed and imitated as role models, when, for example, they are providing patient care or working together with other healthcare workers. To use clinical workplace learning as an educational tool to foster the development of trainees into competent professionals, it is therefore important to enhance the role model behavior of clinical trainers.\(^1\)

To assist in this effort, we have developed and validated a tool to assess role model behavior. This Role Model Apperception Tool (RoMAT) consists of attributes of positive role modeling drawn from a systematic review of the literature.\(^2\) Trainees can use the RoMAT to distinguish, through apperception, between positive and negative role modeling, and to assess a clinical trainer’s performance as a role model. The RoMAT consists of 17 items scored on a 5-point Likert scale and divided over two components: ‘Caring Attitude’ and ‘Effectiveness’. ‘Caring Attitude’ clusters items that reflect characteristics of the relationship of trainers to their patients, trainees and others. ‘Effectiveness’ represents items relating to the ability of trainers to provide their patients and trainees with what they need. Both components include an equal number of items addressing personal, teaching and clinical qualities, with high reliabilities.\(^3\) (See Chapter 4, Appendix 1)

Previous studies described two ways of improving role modeling by the clinical trainer: by providing Continuing Professional Development (CPD)/ Faculty Development (FD) courses\(^4,5\) and by giving personal feedback.\(^6\) In 2013, we evaluated the effect on role model behavior of a combined CPD/FD course on obesity and role modeling for General Practitioner (GP) trainers. An increase in the medical knowledge of the GP trainer was established, but there was no effect on the attitude or role model behavior of the trainer or on the knowledge and attitude of the trainee.\(^7\) Maker and colleagues\(^6\) showed a positive effect of personal feedback on role model behavior of the faculty members of a surgical department.

The aim of this study was to re-evaluate these results by assessing changes in the role model behavior of the GP trainer, using the RoMAT to give personal feedback on the role model function.\(^1\)
Method

In the Netherlands, trainees spend 3–4 days a week during their first and third years of GP specialty training working at GP practices under the supervision of their GP trainers. Throughout their training, trainees spend one day a week at one of the eight institutes for GP specialty training, where they are instructed by teachers. Each year, the GP trainers attend eight training days at these institutes. We invited first year GP trainees, starting between September 2012 and March 2013 at two institutes: the Academic Medical Center, University of Amsterdam (AMC-UVA) (n= 91) and the VU University Medical Center Amsterdam (VUMC) (n=79), to complete the RoMAT for their trainers at 6 months (T₁) and 12 (T₂) months as part of the bi-annual evaluation of the trainers. All participants were informed that this newly introduced tool would be part of a study, that participation in the study was voluntary and that questionnaires would be coded in order to prevent responses being traceable to individual respondents. Ethical approval for this study was obtained from the Ethical Review Board of the NVMO (Dutch Association for Medical Education).

After the first assessment, we calculated means and SD scores of all items and of each item separately for all trainers at the same institute. As feedback, the trainers received their personal scores combined with the mean score of their peers. In accordance with the methods used by Maker and colleagues,⁶ we divided the trainers into three performance groups for both components (i.e. Caring Attitude and Effectiveness): below average performance (≥ 1 SD below the mean), average performance (- 1 SD < mean <+ 1 SD) and above average performance (≥ 1 SD above the mean). For each group we compared the scores of both components separately at T₁ and T₂ with a paired t-test and calculated the effect sizes (ES) by dividing the mean difference by the common SD. A p-value < 0.05 was considered a statistically significant change; an ES of < 0.3 was regarded as small, between 0.3 and 0.5 as moderate, and > 0.5 as large. We also calculated the number of trainers in each group (below, mean and above average) before and after feedback.
Results

A total of 76 trainees responded at both T$_1$ and T$_2$, namely 68 (67%) trainees at the AMC–UVA and 8 (11%) at the VUMC (see Table 1).

No significant change in the scores on the Caring Attitude component was established. The scores on the Effectiveness component in the below average performance group increased from 3.89 to 4.08 (p= 0.04) with an ES of .52, showing a large effect.

Table 1
Results for the three groups* before (T$_1$) and after (T$_2$) feedback for both components of the Role Model Apperception Tool (RoMAT)

<table>
<thead>
<tr>
<th>Component of RoMAT</th>
<th>Group 1 (≥1 SD below the mean)</th>
<th>Group 2 (-1 SD &lt; mean &lt;1 SD)</th>
<th>Group 3 (≥1 SD above the mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring Attitude</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score (SD) T$_1$</td>
<td>4.01 (0.14)</td>
<td>4.71 (0.16)</td>
<td>5.00 (0.00)</td>
</tr>
<tr>
<td>Mean score (SD) T$_2$</td>
<td>4.15 (0.32)</td>
<td>4.71 (0.25)</td>
<td>4.82 (0.38)</td>
</tr>
<tr>
<td>P</td>
<td>0.134</td>
<td>0.932</td>
<td>0.088</td>
</tr>
<tr>
<td>ES†</td>
<td>0.41</td>
<td>0.01</td>
<td>0.47</td>
</tr>
<tr>
<td>Number of trainers at T$_1$/T$_2$</td>
<td>15 / 13</td>
<td>46 / 51</td>
<td>15 / 12</td>
</tr>
<tr>
<td>Effectiveness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean score (SD) T$_1$</td>
<td>3.89 (0.11)</td>
<td>4.46 (0.21)</td>
<td>4.96 (0.07)</td>
</tr>
<tr>
<td>Mean score (SD) T$_2$</td>
<td>4.08 (0.37)</td>
<td>4.45 (0.38)</td>
<td>4.75 (0.36)</td>
</tr>
<tr>
<td>P</td>
<td>0.04‡</td>
<td>0.92</td>
<td>0.10</td>
</tr>
<tr>
<td>ES†</td>
<td>0.52</td>
<td>0.02</td>
<td>0.55</td>
</tr>
<tr>
<td>Number of trainers at T$_1$/T$_2$</td>
<td>18 / 11</td>
<td>47 / 49</td>
<td>11 / 16</td>
</tr>
</tbody>
</table>

* The classification of the trainers in three performance groups for both components (Caring Attitude and Effectiveness): 1. Below average performance (≥ 1 SD below the mean), 2. Average performance (-1 SD < mean <+ 1 SD) and 3. Above average performance (≥ 1 SD above the mean)
† Effect Size (ES) = Mean$_{difference}$/SD$_{difference}$
‡ Significant difference at p < 0.05
§ Significant difference at p < 0.05

Discussion

After personal feedback, only the group of GP trainers with the lowest scores showed an improvement on the Effectiveness component of the RoMAT. This pattern is confirmed by the number of trainers shifting from the group with below average performance to the average and above average performance groups. The scores on the Caring Attitude component showed the same trend.
when comparing scores; it also showed a decrease in the number of trainers in the above average performance group.

The improvement on the Caring Attitude component was not statistically significant. This could be because our GPs, in contrast to many clinical specialists, voluntarily choose to become trainers and are thus very motivated to welcome trainees. Attributes of the Caring Attitude component represent this behavior, resulting in every trainer receiving a high score at the start of a traineeship as well as in a ceiling effect. This might also explain why the total scores for Caring Attitude are higher than those for Effectiveness. These results are in line with our previous study in which the scores by the trainees suggested that, when starting their traineeship, they are most sensitive to the aspects of the Caring Attitude component and have not yet discovered the negative characteristics of their trainers. During the second half of their traineeships, they seem to focus more on the attributes of the Effectiveness component, indicating that a trainer with higher scores on the Effectiveness component is a better role model for preparing the trainee to become an independent GP. This might be why the Effectiveness scores start low and increase significantly over the second 6-month period. In the groups with above average performance, the scores were already high on both components at the start, resulting in regression to the mean at $T_2$.

The results of our study are consistent with those of Maker and colleagues with regard to the improvement in the trainers with the lowest scores and in the number of trainers shifting from the lowest to the highest scores. However, there are two important differences. Firstly, the surgical trainers also improved their overall score. Secondly, the surgical trainers showed improvement on four attributes that are similar to attributes of both the Caring Attitude and the Effectiveness component. These differences might originate from the different settings. GP trainers are volunteers and have to attend eight training days each year, so they are highly motivated and already focused on being trainers. Furthermore, GP trainees have only one or two GP trainers as their role models at any one time, making it difficult to compare and to distinguish between positive and negative role modeling, while they also have to discuss their feedback with their trainers. This possibly results in high scores at the start of their training. Surgical trainees, working alongside surgeons who at the same time function as their trainers, have more opportunities to make comparisons and their assessments are anonymous. They therefore tend to give their trainers lower scores, resulting in more opportunities for an increase in scores.
Previous studies\textsuperscript{4,5} suggested that targeted education in positive role model attributes can improve role modeling by the clinical trainer, although our CPD/FD educational intervention showed no improvement on the RoMAT after the course.\textsuperscript{7} Giving feedback to the trainers did result in better scores. This outcome seems to indicate that trainees are able to use the RoMAT to distinguish between positive and negative role modeling, and that the role model behavior of the GP trainer can be improved.

\textit{Limitations}
There was a low response in completing the RoMAT the second time at one of the institutes, probably because the form was sent separately from the standard evaluation and participation was voluntary.

\textit{Implications for future research}
To confirm the findings of our study, the RoMAT needs to be implemented, also in clinical settings, and both the trainee’s and the trainer’s results should be monitored.

\textit{Implications for future education}
This study has shown that the RoMAT can be used to evaluate the effectiveness of educational interventions that are designed to improve the role model behavior of trainers. It also facilitates the design of educational interventions for trainees to develop awareness of which role model behavior of their trainers they should imitate.\textsuperscript{1}
References

Chapter 8

General Discussion
General Discussion

The overall goal of the research reported in this thesis was to gain insight into the influence of the clinical trainer as a role model for the trainee, and to find a way to improve the role model behavior of the clinical trainer in general practice. In clinical workplace learning, trainees are expected to grow into their future role as capable, professional physicians by working alongside clinical trainers as their teachers, mentors, coaches, and role models. A trainer and a trainee make a mutual agreement that the former will act as a teacher, mentor, or coach for a certain period of time. This is in contrast to being a role model: A trainer is always and everywhere a role model, even when he or she is not aware of being observed by the trainee. Role modeling is a powerful educational tool in workplace learning and for conveying professional competences from master to apprentice. To optimize the learning environment for the trainee, the trainer receives education by way of continuing professional development (CPD) and faculty development (FD) courses, in the expectation that the trainer will convey the acquired competences to the trainee. Trainers have a large influence on the behavior of trainees, especially in situations that the latter find difficult. Lifestyle counseling to treat overweight and obese patients (here, both are referred to as ‘obese’) is considered such a situation in which trainees find it difficult to become competent (Chapter 2). Therefore, the aim of the research was to:

1. Gain insight into what influences trainees to become competent in providing lifestyle interventions for overweight and obese patients.
2. Analyze how the clinical trainer, as a role model for the trainee, influences this process.
3. Explore how to improve role modeling in clinical practice, in order to optimize the growth of trainees into their future role as independent and competent professionals who are capable of providing high-quality patient care.
4. Evaluate the effectiveness of an educational intervention (combined CPD/FD courses) to improve the role model behavior of the trainer.
5. Investigate whether this process can be effected by providing feedback on the role model behavior of the trainer.
Key findings and interpretation

1: Lifestyle counseling to treat obesity

GPs are familiar with the patient’s situation at home for a prolonged period of time. They are therefore able to treat chronic illnesses and their complications and, in line with this, pay attention to their prevention. Obesity is considered a chronic condition and an important risk factor for many life-threatening illnesses. Even though more attention is being paid to chronic illnesses, there is still a growing epidemic of obesity.12-14 Some of the GP trainers said that because they had not seen any lifelong results of weight management, they were no longer motivated to treat obese patients or to teach trainees about weight management. Both trainees and trainers ask for tools and programs that are known to have long-term results to help them implement lifestyle counseling for obese patients, especially those who are suffering from physical complaints caused by their weight or are at high cardiovascular risk15 (Chapter 2).

Although GP trainees are trained in motivational interviewing technics, and there are guidelines on how to recognize overweight patients and what advice to give to patients at risk, GP trainees do not feel competent to treat patients with obesity, not even toward the end of their GP specialty training. While their attitude changed from astonishment to pity, they were still afraid to address the problem to their overweight patients and had difficulty giving lifestyle counseling to treat obesity (Chapter 2). Even though their personal experience might have caused this lack of competence, it is also likely that the role model behavior of the GP trainer influences the trainee. We therefore reflected on the GP trainer as a role model for the trainee.

2: The clinical trainer as a role model

Role modeling

A clinical trainer performs several roles for a trainee, namely as a teacher, mentor, coach, and role model, the last-mentioned being the most implicit of the four roles.1 This role modeling also occurs when the trainer’s focus is on other, non-trainee related tasks.2,16 The difference between the explicit and implicit roles of the trainer became even more clear after identifying the attributes that define positive role modeling (Chapter 3). These attributes can be divided into three categories, namely patient care (=clinical) qualities, teaching qualities, and personal
qualities.\textsuperscript{17-19} We defined these qualities as the 3xH's: the Head for the teaching qualities, the Heart for the personal qualities, and being Hands-on, exercising the clinical qualities in daily patient care (Chapter 3). Therefore, role modeling is more than just a part of being a teacher; on the contrary, teaching might even be considered as part of role modeling. To convey the 3xH's qualities, role modeling requires the implicit acting of the trainer to be made explicit to the trainee.\textsuperscript{1,16} Improving role modeling in GP practice as a powerful educational tool\textsuperscript{18,19} can be achieved when the GP trainer has a fairly precise idea of what he or she is modeling and trying to convey.\textsuperscript{20} Other strategies to improve role modeling on the basis of a number of identified characteristics have been described in a review by Cruess.\textsuperscript{16} These are, for instance, raising the trainer's awareness of serving as a role model or by facilitating reflection on what has been modeled.

\textit{Positive and negative role modeling}

By being aware of their role model status, clinical trainers are able to seek opportunities to demonstrate behavior, to comment on what was done, and to explain what was done.\textsuperscript{18} This helps trainees to use the modeled behavior as a guide for their own professional development. But when the trainer displays negative role modeling, for example in treating obesity, the trainee can adopt less desirable behavior.\textsuperscript{21} It is therefore important for trainees to be able to distinguish positive from negative role modeling. This difference is more easily determined if a trainee can compare the modeled behavior of one trainer with that of another trainer who displays more professionally competent behavior,\textsuperscript{18,19} as is the case in the clinical training setting (surgery, internal medicine, pediatrics, etc.). Considering that in general practice training, only one or sometimes two GPs serve as trainers per GP trainee for a whole year, a tool to determine whether it is desirable to imitate a trainer's role modeled behavior would allow the trainee to select the correct professional competences to imitate.

3: Assessing role modeling

Incorporating attributes of positive role modeling in a tool for assessing role model behavior resulted in the Role Model Apperception Tool (RoMAT). The 17 items of the RoMAT, which are scored on a 5-point Likert scale, are divided into two components, namely Caring Attitude (=important for communication) and Effectiveness (=important for giving others what they need). Trainees can use this tool to evaluate their trainer, and this feedback can be used by trainers to become
aware of their qualities as a role model and improve their role modeling behavior. Furthermore, this tool allows the trainee to distinguish, through apperception, between positive and negative role model behavior, and more consciously select which behavior to imitate. The tool can also help identify a trainer as a less competent role model, and therefore as less desirable as an educator for the trainee. When aiming to improve role model behavior, it is important to use such a tool as the RoMAT to evaluate the effectiveness of CPD/FD courses (Chapter 4).

4: CPD/FP courses

Role model behavior after education in lifestyle counseling to treat obesity

Although clinical trainers are frequently trained as teachers, they are often unaware of being role models or of displaying negative role modeling that is observed by trainees. Making clinical trainers aware of being role models for trainees creates the opportunity for the trainers to explain themselves when they display less desirable behavior, and to state why they behaved like that. Commenting on what is modeled can reduce the risk of trainees imitating or even adopting this behavior. It may well be that recognizing negative role modeling is also necessary for trainee to learn how not to behave as a physician. Therefore, stimulation and amplification of the role model awareness of the trainer is important and may be established with combined CPD/FD courses.

An FD subject (i.e., conveying knowledge and the correct attitude as a role model) was integrated in a CPD course on new guidelines on obesity and strategies to treat the condition (Chapter 5). This setup was chosen because of the difficulty trainees face in becoming competent in treating obese patients, and because of the importance of weight management for obese patients with complaints or high health risks. As described above, in an earlier study (Chapter 2) we found that trainers were often considered a negative example regarding this specific subject. The course was evaluated with an ‘objective’ pre- and post-assessment of the knowledge and a self-assessment of the attitude of the trainer. As we were seeking an improved workplace climate and master–apprenticeship relation through role modeling, the course was also evaluated with a pre- and post-assessment of knowledge and attitude in the target population (the trainees) and with an assessment of the change in role model behavior of the trainers as determined by the trainees.
Only an increase in the trainers’ knowledge about weight management could be established. Furthermore, the evaluation showed a small correlation of the scores on the Effectiveness component of the RoMAT and a higher attitude score of the trainee, indicating that more positive role model behavior of the trainer is related to a more positive attitude toward weight management of the trainee (Chapter 5). This can be an indication of how positive role modeling is beneficial to the trainee.

The individual scores of the trainers sometimes varied extensively before and after the intervention over a period of six months, showing that a longer and more intensive contact between trainer and trainee can change the evaluation both positively and negatively. However, the trend showing lower scores the second time could mean that, even when the trainer improved in role modeling, the trainee over time has discovered more of the trainer’s weak spots or now has a different perspective on what to expect from a trainer.

It seems logical that less experienced trainers scored higher scores on the Caring Attitude component, because they are likely to be more empathetic toward inexperienced trainees. In contrast, trainers with more experience are probably more at ease in providing daily patient care, and consequently have higher scores on the Effectiveness component. They therefore seem to have a greater ability and more opportunities to give trainees what they need to become competent GPs, compared to less experienced trainers. The higher role model scores on both components for trainers with fewer than 2,500 patients to care for, might be caused by having more time available for the trainee. This was also found in a previous study.17

Effectiveness of CPD/FD courses

This minimal effectiveness of the CPD/FD course as measured in the target population24-26 (Chapter 5) might be the result of the expectation that the competences presented to the trainers in a course, will cascade down by way of the master-apprenticeship relation to the training practice and the trainee. This linear model is intended to ensure that the trainee can become a GP who is capable of providing high quality patient care. Already O’Sullivan and Irby27 described a shift from this traditional, linear model of FD to an expanded cyclical model of FD that is embedded in the FD and workplace community. But they looked only at the process of FD and its effectiveness, and only from a theoretical point of view. In our study (Chapter 6), we found that adverse currents – such as
the influence of the patient on the conveyance from trainer to trainee, and the receptiveness of the trainee for the subject – function as filters, diminishing the effects of CPD/FD courses. Therefore, it is better to use a whirlpool than a cascade to visualize the effectiveness of the trainers’ amplification by way of a CPD/FD course. The currents in this whirlpool can be influenced by transforming the filters into multiple turning points that increase rather than decrease the effectiveness. This transformation will make the CPD/FD course more effective, amplify the role model function of the trainer, and improve workplace learning in clinical practice.

5: Role modeling after feedback

It is no surprise that, after receiving feedback, the trainers with the lowest scores improved more than those who were already scoring above the mean\textsuperscript{28,29} (Chapter 7). This is exactly what we expect feedback to accomplish, and it is therefore reassuring and encouraging. Thus, paying attention to role model behavior and making the trainer aware of being a role model can be rewarding. Showing improvement on the RoMAT also demonstrated that the RoMAT is capable of detecting change, and can therefore be used when assessing the effectiveness of interventions regarding the role model function of trainers.

Implications for the future

The RoMAT

Feedback by means of the RoMAT can improve role model behavior (Chapter 7), a finding that is consistent with the literature.\textsuperscript{29} Grol and Grimshaw\textsuperscript{30} found that feedback can improve practice behavior, but that this effect stops when the feedback is not continued. Therefore, to improve role modeling permanently, it seems necessary to implement the RoMAT or integrate it in more longitudinal methods of evaluation that are already in use to sustain the positive effect on role modeling.

We are currently discussing an implementation plan with other institutes for GP specialty training in the Netherlands, with the aim of incorporating the RoMAT in the national bi-annual evaluation of GP trainers. We are also exploring the development of a digital form, which will allow the generation of individual feedback and comparisons with peers as reference standards.
The Whirlpool (See Figure)

When the influential factors of amplification, awareness, applicability, conveyance, and interaction, which currently function as filters for the flow of information from course to trainer to trainee, become turning points around the whirlpool, we might improve effectiveness of training / courses for trainers. For some components of this process, this has already been confirmed in another study.27

<table>
<thead>
<tr>
<th>Amplification</th>
<th>Applicability</th>
<th>Conveyance</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Choose topic important for health patient</td>
<td>- Let peers discuss applicability</td>
<td>- Choose topic appropriate for phase of training</td>
</tr>
<tr>
<td>- Choose topic from curriculum of trainee</td>
<td>- Use multifaceted/mixed educational methods</td>
<td>- Train the trainer in demonstrating, commenting</td>
</tr>
<tr>
<td>- Train the teacher</td>
<td>- Implement attention for making implicit explicit</td>
<td>and explaining</td>
</tr>
<tr>
<td>- Practice role modeling with peers</td>
<td></td>
<td>- Make asking question about a topic in daily</td>
</tr>
<tr>
<td>- Use accessible (digital) educational materials</td>
<td></td>
<td>practice part of trainee’s curriculum</td>
</tr>
</tbody>
</table>

Clinical Trainer

Trainee

Patient

Q: Quality of Patient care

In their studies on the effective implementation of new best evidence in patient care using educational strategies such as CPD courses, Grol and Grimshaw30 emphasize that interactive and continuous educational strategies – including feedback from peers and an emphasis on direct application in daily patient care – are required if these courses are to be effective. Steinert and colleagues24 emphasize the conditions that must be met when developing FD, such as the application of theories of learning and educational principles, programs that extend over longer periods of time, acknowledging the importance of context, and raising the awareness among trainers of their role as teachers. Wright and Carrese18 extend this last item by highlighting the need to make trainers also aware of their role model function.
Further strategies to improve role modeling based on a number of identified characteristics have been described in a review by Cruess and colleagues. For instance, Cruess called for the creation of conditions like engaging in pertinent staff development and facilitating reflection on clinical experiences and what has been modeled. Training trainers and trainees in the same topic will positively influence effectiveness, according to Rubak and colleagues. Choosing a topic that is perceived to be important for the health of patients will also reduce the resistance of the trainer and increase the receptiveness of the trainee. Together, all the points mentioned can create an optimal learning environment in which CPD/FD competences, such as the awareness of being a role model for the trainee, are transferred to and implemented in the training practice, thus improving the effectiveness.

**The Gold Standard**

The effectiveness of CPD and/or FD courses for clinical trainers in improving the professional competences of trainees can only be demonstrated through an assessment of the effect of the course on the trainee’s treatment of patients in the clinical workplace, or, even more adequately, by assessing the influence of these courses on the clinical outcomes of patients treated by these trainees. Not many results have been reported at the level of the target population, however, and when studies were evaluated at this level, little or no effect was found, as in our study. In fact, Breckwoldt and colleagues reported a paradoxical effect after an FD course: Students of trained clinical teachers performed worse than students of untrained teachers. They concluded that this effect could have been caused by difficulties in integrating new strategies, resulting in a temporary deterioration in performance. This illustrates that, due to the complexity of educational interventions, the lack of reliable measures, and the many influences affecting the outcome, it is very hard to establish whether a CPD/FD course has an effect.

As a result of the diversity of outcomes at different levels, the use of unalike, not always equally valid and reliable evaluation instruments, and the changing length of follow-up periods, in the case of CPD courses, Tian and colleagues argue for a gold standard against which all courses at all levels should be assessed after a minimum period of one year. According to their study, this will allow comparison between courses and, if all levels of evaluation are assessed, may reveal more relationships between different levels. For the same reasons, a gold standard may also be helpful in evaluating combined CPD/FD courses, whereby the influences
found in the whirlpool effect as turning points (Chapter 6) can be used as core items for this gold standard.

To understand why interventions do or do not work, the outcomes of innovative educational interventions should also be compared with control groups of standard educational interventions and evaluated in the target population with this gold standard.

The Masterpiece

After the CPD/FD course, less experienced trainers improved their attitude more than experienced trainers, indicating that training in positive role modeling behavior should start before a GP becomes a GP trainer. As many GPs become trainers of students (clerks), trainees, practice assistants, practice nurses, etc., it would be even better if trainees, during their training period, were already trained in their future function as role models. Programs have already been developed to let GP trainees coach a medical student (clerk) for a short period in the training practice, just like residents coach clerkship students in the hospital setting. By using the RoMAT to evaluate the GP trainee as a role model who is observed by the student, future GPs will become aware of being role models. This evaluation could be part of a ‘masterpiece’ for the GP trainees, before being registered as independent, professionally competent GPs. This is similar to the old days, when an apprentice had to complete a masterpiece in order to become a master. This part of the masterpiece comprises the CanMEDS role “Scholar.”

The limited ability of students to accurately assess all aspects of being a competent professional GP role model can be overcome by using multisource feedback. Patient evaluation of the GP trainee, for instance, should be another part of the ‘masterpiece.’ There are several reasons for this. Firstly, a trainee is probably sensitive to feedback of the patient because they find important what is needed in the care for the patient, especially when it is important for the health of the patient (Chapter 6). Secondly, patients are able to compare trainer and trainee, and thirdly, later on in their lives as GPs, they are also evaluated by the patients as part of the visitation process to remain registered as GPs and the accreditation process of their practice. Getting used to this form of feedback is good preparation for their future careers.

In the future, this evaluation of student and patient together with the evaluation of trainer and teachers, who can observe the other competences of the role model behavior of the trainee, could lead to the creation of a complete ‘masterpiece’ that comprises all the CanMEDS roles.
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Summary

Chapter 2  Both patients and government expect the General Practitioner (GP) to treat obesity. Previous studies reported a negative attitude of GPs towards this task. Little is known about the attitude of GP trainees. To assess the attitude and other factors that influence the willingness and ability of GP trainees to provide lifestyle interventions for overweight patients, we performed a qualitative study using focus groups, consisting of first- and third-year trainees, GP trainers and teachers.

The data showed that first-year trainees lack knowledge and a positive attitude. Third-year trainees, although trained in motivational interviewing techniques, lack specific knowledge and feel cheated when discussing eating habits. Trainers are despondent as they rarely observe long-lasting results. Teachers warn the trainees not to have high hopes. The trainers and trainees fear ruining the relationship with their patient.

Chapter 2 concludes that trainees do not feel more competent in treating overweight patients successfully over the course of their GP specialty training and GP trainers are not convinced of the success of the treatment of overweight patients. Therefore it could be equally important to reflect on the GP trainer as a role model as to concentrate on the education of the trainee.

Chapter 3  Medical trainees (interns and residents) and their clinical trainers need to be aware of the differences between positive and negative role modeling to ensure trainees imitate and trainers demonstrate the professional behavior required to provide high-quality patient care. Therefore we systematically reviewed the medical and medical education literature to identify the attributes that characterize clinical trainers as positive and negative role models for trainees.

We divided the found attributes of role models into three categories: patient care qualities, teaching qualities, and personal qualities. Positive role models were frequently described as excellent clinicians who were invested in the doctor-patient relationship. They inspired and taught trainees while carrying out other tasks, were patient, and had integrity. These findings confirm the implicit nature of role modeling. Positive role models’ appearance and scientific achievements were among their least important attributes. Negative role models were described as uncaring toward patients, unsupportive of trainees, cynical, and impatient.

These identified attributes may help trainees recognize which aspects of the
clinical trainer’s professional behavior to imitate, by adding the important step of apperception to the process of learning professional competencies through observation.

Chapter 4 With the identified attributes from chapter 3, we developed and validated an instrument to assess clinical trainers as role models: the Role Model Apperception Tool (RoMAT). This instrument consists of 17 attributes characterizing a role model, to be assessed using a Likert scale. In 2012, general practice (GP) trainees, in their first or third year of post-graduate training, who attended a curriculum day at institutes in Amsterdam, Nijmegen, Maastricht and Leiden, completed the RoMAT. On the data that were generated we performed a principal component analysis, and we tested the instrument’s validity and reliability. The RoMAT demonstrated both content and convergent validity. Two components were extracted: “Caring Attitude” and “Effectiveness.” Both components had high reliability scores (0.92 and 0.84, respectively). Less experienced trainees scored their trainers significantly higher on the Caring Attitude component. The RoMAT proved to be a valid, reliable instrument for assessing clinical trainers’ role-modeling behavior. Both components include an equal number of items addressing personal (Heart), teaching (Head), and clinical (Hands-on) qualities, thus demonstrating that competence in the “3Hs” is a condition for positive role modeling.

Chapter 5 We used the RoMAT to establish whether a ‘teach-the-trainer’ course leads to improvements in the role model behavior of the clinical trainers. Therefore, we performed a controlled intervention study with GP trainers and GP trainees from four training institutes in the Netherlands. Clinical trainers in the two intervention institutes received two 3-hour training sessions on weight management, focusing on knowledge and attitudes towards obesity, and on conveying the correct professional competency as a positive role model for trainees. This was measured using questionnaires on knowledge and attitude of the trainers and their trainees, and using the RoMAT, completed by the trainees for their trainers. As a result of the educational intervention GP trainers showed an increase in knowledge and several characteristics could be identified as being related to positive role model behavior. Also a small correlation was found between trainers with better role model behavior on the “Effectiveness” component of the RoMAT and trainees with the highest scores on attitude.
However, this teach-the-trainer course in which knowledge, attitudes, and role modeling were integrated and that improved the knowledge of clinical trainers, did not result in a measurably better professional outcome for the trainee, maybe due to a more objective level of assessment.

Chapter 6 Continuing Professional Development (CPD) and Faculty Development (FD) courses have been designed in the expectation that a cascade effect will occur: conveyance of information from course to clinical trainer to daily practice and/or to trainee by means of role modeling.

To gain insight into factors encouraging clinical trainers to incorporate what they have learned in CPD/FD into their role model function and factors influencing conveyance from master to apprentice, we conducted a qualitative study using semi-structured interviews with GP trainers and their trainees.

Twenty-four GP trainers who completed a CPD/FD course, and sixteen of their trainees participated. Analysis of their statements enabled identification of factors that affect amplification of the competences of the clinical trainer and awareness of being a role model, applicability in training practice and conveyance to the trainee.

As a result of interaction between trainer, trainee and patient, conveyance of competences from master to apprentice seems to be better represented by a whirlpool than a cascade with steps, functioning as filters, declining the effectiveness of CPD/FD courses. These filters are influenced by different factors and interactions. Using these filters as turning-points for improvements around the whirlpool could increase the effectiveness of CPD/FD.

Chapter 7 We also used the RoMAT to assess changes in role model behavior of the clinical trainer after giving personal feedback.

First year GP trainees at two institutes for GP specialty training in the Netherlands were asked to complete the RoMAT for their clinical trainers. The RoMAT was scored before and after the trainers received their personal scores combined with the mean score of their peers. The trainers were divided into three performance groups: below average, average and above average.

After the personal feedback only the group of trainers with the lowest scores showed an improvement on the Effectiveness component of the RoMAT. This pattern was confirmed by the number of trainers shifting from the group with below average performance to the average and above average performance groups.
This study showed that giving feedback to clinical trainers did result in better scores on role model behavior. This outcome seems to indicate that trainees are able to use the RoMAT to distinguish between positive and negative role modeling, and that the role model behavior of the clinical trainer can be improved.
Chapter 10

Samenvatting
Samenvatting

Hoofdstuk I
Van oudsher leerden artsen in opleiding een bekwaam, professioneel en zelfstandig arts te worden door mee te lopen met een ervaren arts als hun meester in een meester-gezel relatie. Nog steeds werken artsen in opleiding tot huisarts (aios) in het eerste en derde jaar van hun 3-jarige specialisatie een groot gedeelte van de week in de huisartspraktijk van hun huisartsopleider (HAO). Deze huisartsopleider is hun klinische opleider en functioneert als hun mentor, coach, docent en als hun rolmodel. Een rolmodel wordt in de literatuur gedefinieerd als "iemand die beschouwd wordt als de gouden standaard, waard om geïmiteerd te worden."

Het tweede jaar van hun specialisatie werken de aios in diverse klinische stages. Gedurende de hele periode van 3 jaar krijgen de aios één dag per week onderwijs op één van de acht Huisartsopleidingen in Nederland. Ook de huisartsopleiders krijgen hier acht dagen per jaar onderwijs. Dit onderwijs wordt gegeven door huisartsdocenten en gedragswetenschappers.

Studies hebben aangetoond dat het trainen van klinische opleiders, zowel in de kliniek als in de huisartspraktijk, effectief is en hun docentvaardigheden in de praktijk verbetert. Tijd-sparend en motivatie-verhogend zijn de trainingen die een medisch met een onderwijskundig onderwerp combineren. Het is nog niet bekend of je ook het rolmodelgedrag van opleiders in de praktijk door onderwijs kan verbeteren. Verschillende onderzoekers suggereren dat wel en ook is al aangetoond dat je het functioneren als rolmodel kan verbeteren door persoonlijk feedback te geven.

Dit proefschrift beschrijft een onderzoek dat hierop aansluit, beginnend met de onderbouwing waarom, als medisch onderwerp, de keuze voor leefstijlinterventies bij obesitas gemaakt is. Vervolgens worden twee studies beschreven naar een methode om het rolmodelschap van de klinische opleider, in deze studies is dat de huisartsopleider, te evalueren. Tenslotte beschrijft dit proefschrift de effectiviteit van een aan huisartsopleiders gegeven gecombineerde onderwijsinterventie op de kennis en attitude van hun aios in de huisartspraktijk en de effectiviteit van het geven van persoonlijke feedback aan de huisartsopleider.
Hoofdstuk 2
Van de huisarts wordt door de overheid en door patiënten verwacht, dat hij of zij patiënten behandelt voor obesitas. Door negatieve ervaringen en het moeten overwinnen van meerdere barrières komt hiervan in de praktijk weinig terecht. Wanneer eerste en derde jaars aios gevraagd wordt hoe zij tegenover het behandelen van patiënten met obesitas staan, antwoorden de eerste jaars dat zij onvoldoende kennis hebben en een negatieve attitude ten opzicht van obese patiënten. Derde jaars geven aan inmiddels wel geschoold te zijn in motiverende gespreksvoering, maar ervaren nog steeds een kennisgebrek en durven niet goed op de door de patiënt gegeven informatie over zijn/haar leefstijl te vertrouwen. Na 3 jaar opleiding blijkt dat aios, ondanks kennistoeename en training, zich niet meer competent zijn gaan voelen in het behandelen van obesitas met behulp van leefstijladviezen; kan dit het gevolg zijn van de negatieve ervaringen die de huisartsopleider als rolmodel aan de aios doorgeeft?

Hoofdstuk 3
Voor de aios is het noodzakelijk om onderscheid te kunnen maken tussen positief en negatief rolmodelgedrag van hun klinische opleider zodat zij het professionele gedrag kunnen overnemen, nodig voor een hoge kwaliteit patiëntenzorg. In dit hoofdstuk zijn met een systematisch literatuuronderzoek de eigenschappen verzameld waarmee een positief of negatief rolmodel kan worden herkend. Deze eigenschappen kunnen worden ingedeeld in drie categorieën van kwaliteiten: persoonlijke (uit het hart), docent (met het hoofd) en klinische (met de handen: hands-on); de 3H's: hart, hoofd en hands-on eigenschappen. Een positief rolmodel wordt vaak omschreven als iemand die excelleert in het klinisch werken, wat ook blijkt uit een goede dokter-patiënt relatie. Deze artsen inspireren en onderwijzen aios terwijl ze andere taken uitvoeren en zijn geduldig en integer. Bovengenoemde eigenschappen bevestigen het impliciete karakter van het rolmodel zijn. Het uiterlijk en de wetenschappelijke prestaties van een klinisch opleider blijken minder bij te dragen aan positief rolmodelgedrag. Daarentegen wordt negatief rolmodelgedrag gekarakteriseerd door het vertonen van onverschilligheid naar patiënten, het geven van te weinig ondersteuning aan aios en het cynisch en ongeduldig zijn. Met de geïdentificeerde eigenschappen kan de aios beter beoordelen welk gedrag uitnodigt tot imiteren. Want met deze eigenschappen kan een tussenstap worden ingebouwd, namelijk: het bewust waarnemen (=apperception'), in het proces van professionele competenties aanleren door observatie.
Hoofdstuk 4
Met de geïdentificeerde eigenschappen uit hoofdstuk 3 wordt in dit hoofdstuk een instrument samengesteld en gevalideerd om het rolmodelgedrag van de klinische opleider te evalueren: the Role Model Apperception Tool (RoMAT). Dit is een lijst met 17 items die eigenschappen van een positief rolmodel beschrijven en die gescoord worden op een beoordelingsschaal van 1-5. Dit instrument werd uitgetest op 4 huisartsopleidingen in Amsterdam, Nijmegen, Maastricht en Leiden. In 2012 vulden eerste en derde jaars aios huisartsgeneeskunde de lijst over hun huisartsopleider in. Met de resultaten kon bevestigd worden dat de lijst valide en betrouwbaar is. De lijst bleek uiteen te vallen in twee componenten: 'Zorgzaamheid', die eigenschappen omvat die de opleider nodig heeft om een goede relatie in stand te houden met patiënten, familieleden van patiënten, aios en andere (mede)werkers in de gezondheidszorg en 'Effectiviteit', die eigenschappen omvat die de opleider in staat stelt om de ander te geven wat deze nodig heeft. Minder ervaren aios scoorden hun opleider hoger op de Zorgzaamheid component. Beide componenten bestonden uit evenveel eigenschappen betreffende de klinische ('hands-on'), docent ('hoofd') en persoonlijke ('hart') kwaliteiten, daarmee aantonend dat het competent zijn op de 3H's een voorwaarde is voor positief rolmodel gedrag.

Hoofdstuk 5
In dit hoofdstuk werd de RoMAT gebruikt om vast te stellen of onderwijs aan klinische opleiders, in dit geval huisartsopleiders, het rolmodelgedrag van deze opleiders kan verbeteren. Aan 2 groepen huisartsopleiders uit Amsterdam en Nijmegen werd onderwijs gegeven en aan 2 groepen huisartsopleiders uit Maastricht en Leiden niet. De onderwijsinterventie bestond uit 2 x 3 uur onderwijs over de behandeling van obesitas door middel van leefstijlinterventies, gecombineerd met onderwijs over hoe het geleerde over te dragen aan de aios in de huisartsopleidingspraktijk en wat voor rolmodel je voor de aios hierin wilt zijn. Voorafgaande aan, vlak na en 3 maanden na het onderwijs werd met behulp van evaluatie door de opleiders zelf gemeten of de kennis en attitude van de opleiders verbeterden, werd gescoord door de aios of het rolmodelgedrag van de opleiders verbeterde en werd door evaluatie van de aios zelf gemeten of de kennis en de attitude van de aios verbeterden. Na de onderwijsinterventie was de kennis van de opleiders duidelijk toegenomen, maar de attitude en het rolmodelgedrag veranderden niet. Ook de kennis en de
attitude van de aios bleven gelijk. Wel bleek er een kleine correlatie te bestaan tussen een betere attitude van de aios met een hogere score van hun opleider op de Effectiviteit component van het rolmodelgedrag. Verder bleken opleiders die alleen werkten in hun praktijk een betere score te hebben op de Zorgzaamheid component. Daarnaast verbeterden meer ervaren opleiders juist op de Effectiviteit component, terwijl minder ervaren opleiders hun attitude wisten te verbeteren. Opleiders met minder dan 2500 patiënten in de praktijk verbeterden meer op beide componenten dan opleiders met meer dan 2500 patiënten in hun praktijk. Het onderwijs resulteerde niet in meer kennis of een betere attitude van de aios, dit in tegenstelling tot eerdere onderzoeken. Dit wordt mogelijk verklaard doordat dit onderzoek, in plaats van de resultaten van het onderwijs te evalueren, de uitkomsten onder examen omstandigheden meer objectief heeft gemeten.

Hoofdstuk 6
Onderwijs aan klinische opleiders wordt gegeven in de verwachting dat opleiders dit in de opleidingspraktijk weer zullen doorgeven aan de aios. Dit zou onder andere plaats moeten vinden door het als rolmodel voor te doen bij hun patiënten waardoor de aios het geleerde en/of geobserveerde gedrag gaat toepassen in de praktijk in de zorg voor de patiënt. Dit model suggereert dat informatie, door onderwijs aan klinische opleiders trapsgewijs naar beneden stroomt via onderwijs, opleider, opleidingspraktijk, aios tot in de patiëntenzorg als een waterval (cascade). In hoofdstuk 5 werd aangetoond dat hier in de praktijk weinig van terecht komt. Daarom hebben we huisartsopleiders en hun aios gevraagd naar de redenen waarom het onderwijs wel of niet werd doorgegeven of toegepast in de praktijk. Uit hun antwoorden bleek dat de treden van de waterval werken als filters, waardoor het geleerde maar mondjesmaat naar beneden door sijpelt en er bij de onderste trede nauwelijks iets van overblijft. Tevens traden er interacties op tussen opleiders, aios en patiënten, die het resultaat beïnvloedden. Hierdoor werd duidelijk dat de overdracht van onderwijs naar opleiders naar aios in de praktijk beter weergegeven wordt door een draaikolk (whirlpool) dan een waterval. Door de gevonden filters om te zetten in aandachtspunten kan de effectiviteit van het onderwijs aan opleiders verbeterd worden en daardoor de opleiding van de aios tot een zelfstandig, competent en professioneel huisarts. (zie afbeelding)
Hoofdstuk 7
Met de RoMAT werd onderzocht of er een verbetering van het rolmodelgedrag door de klinische opleider is te behalen. Eerst werden aios huisartsgeneeskunde van de UVA en de VU in Amsterdam gevraagd hun huisartsopleider te scoren op de RoMAT. Daarna werd er per groep opleiders uitgerekend wat hun gemiddelde score per item en voor alle items was. De opleiders kregen hun eigen score terug, afgezet tegen de score van hun groepsgenoten. Na een half jaar werden de aios opnieuw gevraagd hun opleider te scoren op hun rolmodelgedrag met de RoMAT. Ook werden de opleiders voor en na de feedback in 3 groepen verdeeld: degenen met de laagste scores, degenen met gemiddelde scores en degenen met de hoogste scores. Na evaluatie van de resultaten bleken de opleiders die aan het begin het laagste scoorden op de Effectiviteit component van de RoMAT het meeste te verbeteren. Dit werd nog eens bevestigd doordat de groep met de laagste scores kleiner werd en de groepen met gemiddelde en hoogste scores groter werden. Uit deze resultaten volgt dat het geven van feedback door middel van de RoMAT een positief effect heeft op het rolmodelgedrag en dat de RoMAT gebruikt kan worden om negatief van positief rolmodelgedrag te onderscheiden.
Hoofdstuk 8
Uit de voorgaande hoofdstukken blijkt dat het gebruik van de RoMAT kan leiden tot een beter bewustzijn van eigen rolmodelgedrag, waardoor verbetering mogelijk is. Ook blijkt dat, door uit te gaan van een draaikolk, waarin filters en interacties omgezet worden naar aandachtspunten, de effectiviteit van onderwijs aan opleiders verhoogd kan worden. Deze draaikolk kan een uitgangspunt zijn voor verder onderzoek naar de effectiviteit van gecombineerde onderwijsinterventies. Door de resultaten te meten op een objectieve, eenduidige manier, bij voorkeur met een ‘gouden standaard’, kunnen uitkomsten van onderzoeken met elkaar vergeleken worden en duidelijk maken wat wel of niet effectiviteit verhogend werkt. Omdat bewustwording leidt tot meer positief rolmodelgedrag, is het belangrijk hier in de opleiding al mee te beginnen. Door aios feedback te laten krijgen op hun rolmodel gedrag door coassistenten en mede-aios, maar ook te laten beoordelen door patiënten, hun opleiders, praktijkmedewerkers en docenten, ontstaat een 360 graden feedback waarmee alle aspecten van het functioneren als zelfstandig arts belicht worden. Deze verzamelde feedback zou kunnen leiden tot een proeve van bekwaamheid, een “meesterproef”, in dit geval als huisarts, zoals deze in vroegere tijden werd afgenomen voordat de gezel zich een meester mocht noemen.
Dankwoord
In de afgelopen jaren heb ik de kans gekregen om mijn werk als huisarts en docent te combineren met het doen van onderzoek, wat uitmondde in een promotietraject.

Daarvoor ben ik mijn promotor Margreet, die dit voor mij mogelijk heeft gemaakt, zeer dankbaar. Gedurende het hele traject heeft ze mij kritisch gevolgd en gaf mij duidelijke feedback, wat mij erg geholpen heeft de dingen die ik deed en schreef te verbeteren. Verder was ze er altijd bij vragen of problemen en maakte tijd voor mij vrij, zelfs toen ze niet meer persoonlijk op de huisartsopleiding aanwezig was. Margreet, ik waardeer het bijzonder dat je mij hebt willen begeleiden, ook nadat je van de huisartsopleiding afscheid genomen had.

Diep respect heb ik voor de empatische en kundige begeleiding door Nynke, mijn copromotor. Dit uitte zich in het vertrouwen dat ze me gaf in het ontwikkelen van mijn eigen leerproces en het mij op een positieve wijze stimuleren gedurende het hele traject in het uitwerken van mijn soms wat wilde en mogelijk ook wel eens wat drammerige ideeën. Daarnaast wist ze met duidelijke feedback aan te geven wat wel en wat niet binnen de grenzen van ons onderzoek thuis hoorde. Allereerst dank dat jij mijn interesses wist om te zetten in een goed onderbouwd en geaccepteerd projectvoorstel, waardoor ik de unieke kans kreeg dit proefschrift te realiseren. Maar vooral, dank dat je het met mij aandurfde, toch iemand met een totaal andere achtergrond en uit een andere generatie en meer dan dank voor de wijze waarop je het deed!


Een bijzonder woord van dank voor prof.dr. Van Binsbergen en prof.dr. Mathus-Vliegen voor het beoordelen van de vragenlijst met kennisvragen over de behandeling van overgewicht en obesitas.
Zonder sparring partners had ik niet zo'n duidelijk resultaat kunnen beschrijven.

- Allereerst heb ik veel hulp gehad van Mechteld voor het meelezen en geven van feedback, maar ook in het ter zijde staan met handige adviezen, verrassend en verfrissend soms, dank daarvoor.
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Daarnaast heb ik ondersteuning gekregen vanuit drie researchgroepen:

- Tevens dank aan de grotere research groep Evidence based Education voor het geven van feedback op geschreven artikelen en de medische research groep voor het leren van elkaar.

Heel veel mensen zijn behulpzaam geweest om het gehele onderzoek mogelijk te maken; ik wil graag mijn waardering uitspreken dat jullie tijd en aandacht vrij wilden maken, zonder jullie hulp was dit proefschrift er nooit gekomen! Dank aan

- mijn medeauteurs: Faridi, Wilfried en Nienke
- mijn onderzoekassistentes: Nienke, Minou, Norma en Gerscha voor jullie hulp bij afname en invoeren van de lijsten en resultaten
- de HAO-commissieleden voor het mogelijk maken van het onderzoek
- de secretariële ondersteuning van onze eigen afdeling, de mensen die er altijd waren voor vragen, maar ook op vele terreinen actief hebben meegewerkt: Agnes, Alice, Chris, Cora, Els, Gerda, Jeroen, Kea, Marja en last but not least Sonja.
- de secretariaten van de deelnemende huisartsopleidingen: Leiden, Maastricht en Nijmegen, voor hun begeleiding van het onderzoek op hun eigen opleidingen
Dankwoord

• de secretaresse van de VU Amsterdam: Hedwich Breuker, die persoonlijk zorgdroeg voor de afname, codering en het retour zenden van de feedback aan de opleiders
• dr. P.B.A. Smits voor het idee van het cascade figuur
• de docenten van onze huisartsopleiding voor het geven van het onderwijs
• de begeleiders van en de deelnemers aan de verschillende onderzoeken, zonder jullie waren er geen resultaten geweest
• mijn kamergenoten Godert, Patricia, Fere en Arnold voor hun luisterend oor

Maar ook aan de andere kant hebben mijn medewerkers in de praktijk mij de tijd en mogelijkheid gegeven om in dit traject te investeren: Tamara, Machteld, Kim, Karin en Tanja, dank voor jullie opvang als ik er weer eens niet was en dat jullie ondanks dat toch mij met jullie enthousiasme zijn blijven stimuleren.

Promoveren en tijd en energie daarin steken kan niet tot een succes leiden zonder de steun van het thuisfront, het voelt goed dat jullie dit voor mij mogelijk gemaakt hebben, ieder op zijn of haar eigen wijze:

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• Hette, mijn enige zus, die, ondanks taken elders en eigen studie, mij als paranimf terzijde wil staan
• Tirza, die hielp met passende woorden in moeizame Engelse zinnen
• Daniël, die als geen ander vastgelopen computers weer aan de gang kreeg
• Ilse, razendsnel in het uittypen van verbatims, die met steun en begrip mij door haar aanpak wist te inspireren
• Jacco, altijd achter de hand voor en frustrerend snel met weerbarstige figuren en computerprogramma’s. Maar ook fantastisch dat je mijn paranimf wilt zijn!
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• Maarten, vraagbaak en steun voor ICT en communicatie problemen
• En tenslotte Aart, de liefde van mijn leven, die alle taken buiten het werk om op zich nam en eindeloos geduld had om voor mij dit traject mogelijk te maken.
Curriculum Vitae
About the author

Ria Jochemsen-van der Leeuw was born as Hendrika Gerardina Adriana van der Leeuw in Santpoort-Zuid (Gemeente Velsen) on the 5th of June 1955. After primary school she completed her secondary school (HBS-B) in 1972, in the final year this school type still existed. In 1980 she graduated from the School of Medicine at VU University, Amsterdam. She attended the one-year General Practitioner (GP) Specialty training at the same university and became a GP in 1981.

From 1982 until 1984 she worked as a GP in a practice in Heusden. This practice also included obstetrics and a private pharmacy. In 1984 she started her own practice in Weesp, first together with a colleague, but from 1989 she continued her practice alone from her own home. As the chairwoman of the Association of (future) tenants of the Health Centre of Weesp, she helped to design and develop a new Health Centre for the city of Weesp. In 2011, her practice was integrated into the newly build Health Center Weesp. Since 2010, the care for her patients has been shared with two colleagues.

Ria already started working as a teacher at the GP Specialty Training of the Academic Medical Center-University of Amsterdam in 1998. In 2008 she was given the opportunity to start her first study. The questions formulated, based on the results of this study, eventually led to her PhD project, which started in 2011. She enjoys combining her work as a GP with her work as an educator and researcher.

Next to her professional work she is voluntary involved in the Stichting Kilimanjaro, a foundation supporting doctors and midwives in Tanzania, with the aim to exchange and promote scientific research and medical knowledge between doctors who work in the Netherlands and their colleagues in Africa.
Portfolio
# PhD training

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