

# Medical residents perceptions of the need for management education in the postgraduate curriculum: a preliminary study

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## Abstract

**Objectives:** The curriculum of the new post-graduate medical training program in the Netherlands is comprised of seven competencies that residents should possess upon graduation. In this new curriculum however, the competency as manager receives relatively little attention. In this preliminary study we investigated the residents' need for management training and tried to identify the preferred form of intervention to develop these management skills.

**Methods:** A survey was designed to investigate the perceived needs of residents for management training and the preferred form of training intervention. A total of 506 residents in four Dutch teaching hospitals were invited to participate in a web-based survey. Results were using descriptive statistics, Chi-square tests and Fisher's exact tests.

**Results:** A total of 177 residents responded to the survey. Of the respondents, 85% (n=146) reported a need for management training. The preferred management topics included negotiation skills, practice partnerships, knowledge of the health care system and career planning. The preferred training method was a workshop given by medical specialists or extramural content experts. The best timing for training was determined to be during residency.

**Conclusions:** Dutch medical residents reported a need for management training. While this study justifies an intervention for training management skills in residents, more research is required to design appropriate programs that consider the preferences of residents.

**Keywords:** Medical residents, management competency, training, needs-assessment

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## Introduction

In many countries, the professional training of medical specialists has been redesigned so that upon completion, junior physicians are equipped with the attitudes, skills and knowledge that would enable them to function efficiently in their communities. The first of these changes was the innovative framework for the education of essential competencies in physicians developed by the Royal College Physicians and Surgeons of Canada. In addition to improving patient care, the aim of this initiative was to define the competencies trainee doctors should possess upon graduation, as well as to monitor and appraise the competencies of practicing physicians. The competencies in this frame-

work included the roles as medical expert, communicator, collaborator, manager, health advocate, professional and scholar.<sup>1</sup>

In January 2005, competency-based training was introduced into the curriculum of all postgraduate medical training programs in the Netherlands. Similar to the CanMEDS competency framework, this new curriculum included seven competencies that residents were required to possess upon graduation. The physician's role as manager was one of these competencies, which compared to the other competencies in the undergraduate and postgraduate training programs, appeared to receive relatively little

attention. The sparse amount of specific (medical) management training modules during the undergraduate and residency period reflects this point. We also examined the perceptions of medical residents on their role as manager and found out that they lacked adequate knowledge and skills of certain essential medical management concepts. This is remarkable however, when one considers that the possession of good management skills and knowledge is important for effective medical practice.

We also found out that during medical school there were no specific trainings available in medical management and during the residency period some were available sporadically, but not mandatory.<sup>2</sup> It is not unthinkable though, that certain management topics (e.g. communication, allocating health resources, using information technology) might be woven through the content of other competencies in the reformed postgraduate curriculum, while specific management topics such as negotiation skills, managing a ward, organisation of the health care system, career planning, time management might be missing entirely.

In a recent review by Busari and colleagues, a literature search was conducted to study two issues on management education in the postgraduate medical curriculum.<sup>3</sup> The objective of this review was first, to identify if there was a need for management training among undergraduate and postgraduate medical trainees; and secondly to find out if there were training programs available, specifically designed to develop management competencies during the medical training programs. In this review, six studies were found in which a needs assessment was performed among residents, fellows or physicians. All of these studies reported a need for management training by the respondents.<sup>4-9</sup> Results of others studies also showed that management training had already been incorporated into the curricula of some medical programs. Most of these studies were conducted in North America and Canada and within the family medicine specialty. Although there was no consensus on the duration, timing and educational method for management training in these studies, all of the programs were evaluated positively.<sup>5,10-24</sup>

With the knowledge that specific management training in the Dutch postgraduate medical training is sparse and the findings (in North America and Canada) as described above that there is a need for management training in the medical curricula, the authors of this study decided to investigate if there was a need for training in management skills among Dutch medical residents. We also wanted to know what the preferred form of intervention would be to develop these competencies in residents during their training. In addition, we were interested in ascertaining if there was any significant relationship between the need for management training and variables such as gender, specialty, training environment, prior managerial experiences and years of clinical experience.

## Methods

A questionnaire based on the findings of the review of Busari and colleagues was designed to collect data in this study.<sup>3</sup> A first draft of the questionnaire, in which a broad variety of questions were included, was sent by email to an expert panel of clinical educators and residents for feedback. Using the feedback received, the questionnaire was revised by modifying or dropping some of the items. The definitive questionnaire consisted of two parts: a first part that examined the residents perceived needs for management training and a second part that assessed the personal characteristics (see Appendix 1).

The items in the needs assessment section investigated the preferred management topics (content), the preferred method of instruction, when the training should take place (timing), the length of the training (duration) and the preferred venue for the training (location). In total, twenty-nine items were included in the questionnaire that comprised of a mix of 5-point Likert-scale-questions, yes/no-questions, open-ended questions and multiple-choice questions.

Medical residents from different specialties in four different teaching hospitals in the Netherlands were solicited, by email, to participate in the survey. The institutions in which residents were working included the Atrium Medical Centre Heerlen (a district teaching hospital) and Maastricht University Medical Center, Academic Medical Centre Amsterdam and University Medical Centre Groningen (university teaching hospitals). In the hospitals in Heerlen and Maastricht, residents in all the specialties were approached. In Amsterdam and Groningen, on the other hand, only those working in paediatric and obstetrics & gynaecology specialties were approached. The choice for these two specialties in these centres was purely due to logistical reasons. Prior to starting the survey, ethical approval from the hospitals research and ethics committee was obtained. We also sought for and obtained the approval of the local resident associations and, where applicable, the approval of the directors of the residency training programs or the equivalent. Using the 'Survey Monkey' web-application, links to the questionnaire were sent to all of the participants by email to complete anonymously. Residents had the duration of three months to respond to the questionnaire and during this period reminders were sent to them twice.

We used the Statistical Package for the Social Sciences (SPSS) to analyze the data. Descriptive statistics were used to present the demographic distribution of the participants and the pattern of the responses to the items. Chi-square and Fisher's exact tests were used to assess relationships between the perceived needs for management training and variables such as gender (male versus female), specialty (surgical versus non-surgical), training location (academic versus district teaching hospital), prior experience with

managerial tasks and/or training (yes versus no) and the years of clinical experience.

## Results

### Baseline Characteristics

Of the 506 residents we approached, 177 residents responded to our survey, yielding a response rate of 35%. Of the 177 returned questionnaires, 170 were used for further analysis as 7 residents did not answer in the questionnaire completely. The majority of the respondents were female (67%); the specialties with the most responses included paediatrics (21%), obstetrics & gynaecology (18%) and internal medicine (14%). A majority of the residents (84%) had no prior experience with management training while more than half of them reported to have had experience with managerial tasks in the past (58%).

Table 1. Baseline characteristics of the responding residents (n=170)

Characteristic		No(%)	Mean (Yr)	Min-Max (Yr)
Gender	Male	56(33)		
	Female	112(67)		
	Missing	2(1.1)		
Age		-	30	24 - 39
Hospital	Atrium Medical Centre Heerlen			
	Medical Academic Centre Maastricht	53(31)		
	Academic Medical Centre Amsterdam	72(42)		
	Medical Academic Centre Groningen	23(14)		
		22(13)		
Specialty	Anesthesiology	15(8.8)		
	Clinical Chemistry	1(0.6)		
	Dermatology	6(3.5)		
	Ear, Nose and Throat Medicine	3(1.8)		
	Emergency Medicine	4(2.4)		
	Internal Medicine	24(14)		
	Medical Genetics	3(1.8)		
	Neurology	4(2.4)		
	Neurosurgery	3(1.8)		
	Obstetrics & Gynecology	31(18)		
	Ophthalmology	5(2.9)		
	Orthopedics	5(2.9)		
	Pathology Medicine	5(2.9)		
	Pediatrics	36(21)		
	Psychiatry	2(1.2)		
	Radiology	8(4.7)		
	Rehabilitation Medicine	1(0.6)		
	Surgery	3(1.8)		
	Urology	1.8(3)		
Missing	8(4.7)			
Years of clinical experience by working as a physician		-	4.3	0 - 13
Any previous management training?	Yes	26(15)		
	No	142(84)		
	Missing	2(1.2)		
Previous experience with management tasks?	Yes	98(58)		
	No	710(41)		
	Missing	2(1.2)		
Attention for management training at current workplace?	Yes	21(12)		
	No	147(87)		
	Missing	2(1.2)		

These experiences included managerial tasks 1) during their undergraduate university period (e.g. in fraternities/sororities and sports club), 2) during their current employment (e.g. participating in medical committees),

and 3) during their PhD-research period. Many (87%) of the respondents also claimed that there was little or no attention for management training at their current training locations. The baseline characteristics of the residents are shown in Table 1.

### Needs assessment

Of the 170 residents, 85% (n=145) reported a need for management training and 50% (n=86) agreed or strongly agreed that there was not enough attention for management tasks during their clinical training. The vast majority of the respondents (n=164) answered the question 'In what topics would you like to be trained?' by selecting their preferred topics (see Figure 1). Most residents chose negotiation skills (n=119), specialist partnerships (n=108), health care system (n=97) and career opportunities (n=96) as topics they want to be trained in. The topics electronic databases (n=21), cost-effectiveness towards diagnosis and treatment (n=18) and medical computer systems (n=13) were least frequently chosen.

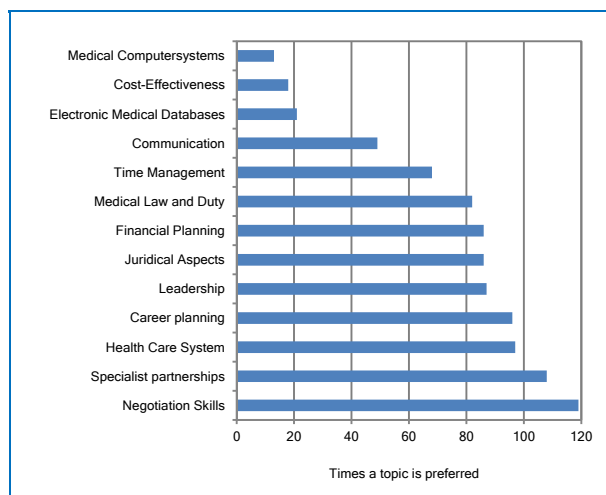


Figure 1. Number of times a topic has been chosen by residents to be trained in (n=164 residents)

On the question regarding preferred training method, 'workshop' was chosen most often: 143 of the 164 residents that answered this question chose 'workshop' eventually in combination with another preferred training method. The other preferred training methods included interactive training (n=64), case-based training (n=56), web-based training (n=49), lectures (n=46) and discussion groups (n=42), see figure 2.

With respect to the instructor of choice, the residents preferred 'medical specialists' (n=140) and 'extramural instructor or experts' (n=140) as training instructors, while only a few chose 'hospital managers' as preferred training instructor (n=36).

The most frequently chosen answer to the question 'I would prefer the training venue to be at...' was 'the workplace' (n=158); other answers included 'university location' (n=52), and 'other' (n=13). The residents were also asked how long they felt such management training should last,

where it should take place and what the preferred timing for management training should be during the program. On the item that specifically asked how long the training should last, i.e. 'I would like a training that lasts...', 141 of the received responses were eventually eligible for analysis. This was because some of the data were not properly answered. For example, some respondents filled in the preferred number of hours a single training session should last instead of the number of hours a whole course should last.

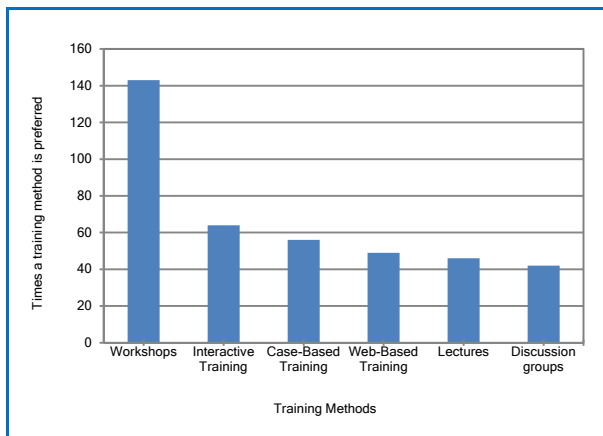


Figure 2. Number of times a topic has been chosen by residents as 'preferred training method' (n=164)

The respondents' preferred duration of the training ranged from 1 to 400 hours, with a mean of 17 hours. On the question how long the length of the training should be i.e. 'During what period a training should take place?', 106 of the 161 submitted responses were useful for analysis. The length of the program that residents preferred most, was one spread over days (n=42 times) or years (n=43 times). A training period spread over months (n=19 times) or weeks (n=2 times) was not a preferred choice. 168 residents answered the question on the timing of training and participating in the training during the residency was the most frequently chosen option (n=162), see table 2.

Data were analyzed to determine if there was a relationship between the perceived need for management training and gender, specialty, hospital setting, previous experience with management tasks and/or training and the number of years of clinical experience. The p-value of all these variables was > 0.05, see Table 3.

## Discussion

The purpose of this study was to investigate whether there was a need for management training among Dutch medical residents and if so, what was the preferred form of intervention. We were also interested in knowing if residents' personal characteristics were of any influence on the perceived needs and preferred choice of training in medical or practice management. The results of our study showed that there was a clear need for management training among

Dutch medical residents. This was demonstrated by 85% of our respondents reporting a need for training in (practice) management skills.

Results also revealed that the need for training in management skills was independent of gender, number of years of clinical experience, specialty, training location and prior experience with management training and/or tasks.

Table 2. Resident's answers to the question "Timing of training..." (n=168)

Timing of training (during...)	Frequency*
Medical school	42
Pre-residency period	37
Residency	163
When working as a Specialist	32

\* Number of times a timing is chosen as 'preferable timing'

The findings of our study showed that in developing their managerial competencies, medical residents had specific preferences for the method of intervention. For example, the preferred method of instruction was the workshop and specialist physician-managers or external content experts were the preferred instructors. The residency period was the moment within the continuum of the medical training that the residents felt they needed training in managerial skills and the suggested average duration for the training was 17 hours, spread over a period of a couple of days to years.

Table 3. Analysis of a possible correlation between a need for training and five variables by using Chi-square tests and Fisher's exact tests (n=170)

Variable		Need for Training		Chi-square test (p-value)	Fisher's exact test (p-value)
		Yes (n)	No (n)		
Gender	Male	50	6	0.470	0.397
	Female	93	19		
Specialty	Surgical	47	6	0.312	-
	Non-surgical	90	19		
Working Venue	Academic	100	17	0.923	-
	Rural	45	8		
Experience with training and/or tasks	Yes	54	12	0.334	-
	No	89	13		
Number of years of clinical work experience	Low (0-2 years)	37	7	0.750	-
	Mean(2-5 years)	59	12		
	High (> 5 years)	44	6		

It was also interesting to find that the preferred method and timing of the training of residents in our study was similar to that in other studies. For example, Sockalingam and colleagues and Maggi and colleagues found that

workshops were the preferred method of learning among psychiatry residents.<sup>6,7</sup>

Williford and colleagues reported that obstetrics and gynaecology residents felt that management instruction should be designed for residents, fellows and faculty rather than for medical students and interns. Furthermore, the recommended total (mean) duration of the course was 19.54 hours, with a clear preference for designated time for practice management on an annual basis.<sup>9</sup>

The respondents in our study also preferred an intervention (i.e. course or training) that dealt with topics on how to develop effective negotiation skills, partnerships with specialist or team practices, career planning skills and better knowledge of health care systems. These findings differed however from those reported by Williford and colleagues. Of the five courses that were ranked in the top ten of potential course topics by residents, former residents and practice executives in their study, only one was similar to ours (e.g. contractual agreements between physicians). The remaining four topics managed care, billing procedures, practice economics and patient record management were different.<sup>9</sup> A possible explanation for this difference might be effects of the ongoing changes in various health care systems (e.g. introduction of electronic patient record) as well as the reform in residency training programs, as the needs-assessment in Williford and colleagues. was conducted in the late 90's.<sup>9</sup> Nonetheless, partnerships with specialist or team practices seem to be a topic in which residents still need training.

We also discovered differences between our findings and those of more recent studies on needs assessments. There were some topics that were mentioned in these studies that we did not identify in ours (e.g., physician compensation, program planning and innovation and leading change). A possible explanation for this difference could be the method used in these studies to identify the residents' preferred topics. For example, in the studies by Sockalingam and colleagues and Maggi and colleagues, a questionnaire was developed to address gaps in physician-manager knowledge and skill-areas in psychiatry residents. The preferred topics were subsequently derived from the gaps identified between the residents' knowledge and skills.<sup>6,7</sup> In our study, we asked residents directly to select those topics in which they wanted training. Another possible explanation for these differences could be related to the mix of the respondents in the surveys. In our study, residents from different specialties were included in the survey, while in the studies by Sockalingam and colleagues and Maggi and colleagues, only psychiatry students participated in them.<sup>6,7</sup>

In addition to the findings described above, there are a few of limitations in our study that are worth mentioning. To begin with, our survey had a relatively low response rate of 35%. On examination of the literature however, we discovered that the reported average response rate for most

studies that employed electronic questionnaires was 35-50%.<sup>25-27</sup> The possible explanations for the low response rate in our study, include the difficulty we had in reaching and enrolling all the residents in the Atrium Medical Centre in the survey. The first invitation for the survey was sent to their email accounts in the hospital, which turned out not to be in use by most of the residents. As a result, we had to send a second email to their private email accounts to ensure they received the invitation and the link to the questionnaire. Other possible explanations for the low response rate were the heavy workload in the clinics that may have prevented the residents from finding/creating time (or being motivated) to respond to our survey, the lack of incentives for participating in the survey or simply the lack of interest in management education among the medical residents we approached. Bearing this last point in mind, it is important to note that there is a potential risk of non-response bias in our results. Our assumption is that residents who are interested in management training might have been more motivated to participate in our survey than those who were not, making it possible that the need for management training might be more among the general resident population than what our results actually reported (i.e., underreporting bias).

The baseline characteristics of the respondents in our study also showed some notable results worthy of elaboration. First of all, the majority of the residents who participated in the survey were female. This observation reflects the current state of the male to female distribution of trainee physicians in medical institutions in the Netherlands. Secondly, the paediatric, obstetrics & gynaecology and internal medicine specialties were overrepresented in our survey and can be explained by the fact that we only approached paediatrics and obstetrics & gynaecology residents in two of the four hospitals. The overrepresentation of internal medicine in the survey however, might be due to the high number of residents that were enrolled within the specialty i.e. volume. However, this cannot be said for the surgical residents who despite a similarly large volume of trainees showed poor participation (i.e., n=3). We do not have a clear explanation for why their participation was poor; although we assume that it could be due to a lack of interest in management training by residents in this specialty or them feeling better equipped with managerial skills and knowledge and thus not feeling the need to respond to the questionnaire. Nonetheless, despite the several possible explanations for the wide distribution of responses, we are aware that results of our survey should be interpreted with caution.

The exclusion of family medicine residents in our survey is another limitation, knowing that the development of management competencies of physicians do play an important role in this specialty. It is possible that the perceived need for management training in this survey might have been lower if residents in family medicine were

also included in the survey. Our findings should therefore be generalized with caution, as they reflect the perceptions of residents in hospital-based specialties alone.

The open-ended questions regarding the number hours a training intervention should last and the period training should occur were also not clearly stated. Many participants failed to answer this question correctly and again, one should be careful in concluding that the preferred length of training should last 17 hours and be spread over days or years.

A course aimed at developing management skills during the residency program (and taking into account the specific needs of the respondents) is currently being developed in our centre, based on the findings of this survey. One may argue the legitimacy of developing a specific intervention based on the findings of this study alone, since our research focused on the subjective needs and preferences of residents and did not objectively investigate the need for management training or the deficiencies in residents' managerial competencies. For this reason, it might be helpful to increase the validity our findings by examining the perceptions of program directors and specialists-physicians on this topic as well.

Finally, as this is a preliminary study in which a survey was used to assess the perceived need for management education, it does not represent an objective assessment of the need for management education among medical residents. Our (subjective) findings indicate that residents find management training to be necessary, but further (objective) research is needed to confirm this. For example, by assessing the quality of specific skills or gaps in residents' managerial competencies or by assessing the perceptions of program directors and specialists-physicians on residents' managerial competencies.

## Conclusions

This study of medical residents' perceptions of their need for training in practice management skills clearly demonstrates that Dutch medical residents desire formal and structural instruction on this subject. Similar to other findings in the literature, Dutch medical residents report a clear need for management training and prefer a program that covers topics on negotiation skills, specialist partnerships, career planning and health care system. The preferred method of instruction should be a workshop in the hospital environment and with a specialist physician manager or external content expert as training instructor. Furthermore, the training should take place during residency. Despite some limitations of our study, these findings indicate that a management training intervention is necessary during residency. Residents have specific training preferences for such an intervention, which course developers should bear in mind when developing such a program. We believe that more (objective and valid) research

on this subject would be helpful in developing specific and effective training interventions.

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#### Appendix I: Questionnaire

##### Needs assessment

1. **There is not sufficient time given to management responsibilities and management training at my work place.**  
*Answers: I totally agree, I agree, Neutral, I disagree, I totally disagree*
2. **I have a need for training in management competencies.**  
*Answers: Yes, No*
3. **I would prefer extra teaching/training in the following topics (multiple answers possible)...**  
*Answers: Career options, Financial Planning, Negotiation skills e.g. contract negotiation, Time management, Health Care System, Specialist Partnerships, Leadership, Juridical Aspects of Medical Mistakes, Medical Law and Duty, Communication, Medical Cost-effectiveness of Diagnosis and Treatment, Medical Computer Systems, Electronic Medical Databases, Other (please specify), I don't need training*
4. **I would like training which uses the following method (multiple answers possible)...**  
*Answers: Lectures, Workshop, Discussion Groups, Interactive training, Case-Based training, Web-Based Training, Other (please specify), I don't need training*
5. **I would prefer the following as an instructor in developing my management competencies... (multiple answers possible)...**  
*Answers: Physician, Extramural Expert, Hospital Manager, Other (please specify), I don't need training*
6. **I would prefer the venue of the training to be at... (multiple answers possible)**  
*Answers: My Workplace (e.g. hospital, private practice), A University Location, Other (please specify), I don't need training*
7. **I would like a training that lasts... (fill in 0 hours if you don't need training)**  
*Open ended question*
8. **During what period should training take place? (e.g. during one day, spread during a month, spread during a year)**  
*Open ended question*
9. **Timing of training...**  
*Answers: during Medical School, during Pre-Residency Period e.g. Senior House Officer, during Residency, When Working as a Specialist, I don't need training*

##### Personal Characteristics

1. **Gender**  
*Answers: Male, Female*
2. **Age and Medical Training: Age (for example 26 years), Year of Graduation (for example 2006), University (for example Maastricht University)**  
*Open ended questions*
3. **Work experience: I work in the following specialty (for example pediatrics)...., Total years of work experience as a resident/senior house officer (for example 2 years)...., Current training year in your specialty (fill in 0 years if not undergoing training for a certain specialty)...**  
*Open ended questions*
4. **Besides medicine I also undertook a training/curriculum/course which contributes to my functioning as a manager...**  
*Answers: No I have not undertaken such training, Yes I undertook the following training/curriculum/course (please specify)*
5. **I have had experiences which can contribute to my functioning as a manager...**  
*Answers: No I don't have, Yes I have had the following experiences (for example sorority life, study club, sports club, etcetera).*
6. **During my training, focused training has been spent on the management role of physicians...**  
*Answers: No, Yes namely (please specify)*
7. **After finishing my postgraduate medical training, I would like to work in a... (multiple answers possible)**  
*Answers: Teaching (Academic) Hospital, General Hospital, Practice (private or family), I don't know yet, Other (please specify)*