

How do medical specialists perceive their competency as physician-managers?

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Abstract

Objectives: We investigated specialists' self-perceived competency as managers as well as their perceived need for management education and preferences regarding topics, duration and format of training.

Methods: We conducted a quantitative study of 127 medical specialists (response rate 42.6%) from four Dutch hospitals. A 36-item questionnaire was designed and sent by email, using the Survey Monkey web application. Quantitative content analysis was employed to analyse data.

Results: Specialists from 20 different specialties participated in the survey. The mean age was 47 years (SD=8.5) and the majority (76%) were male. Fifty-one per cent had prior management training and 72% had experience in a management position. Despite general good self-ratings, over 50% rated the balance of their personal and working life as neutral or lower. The specialists felt most competent in finding resources to keep their knowledge up to date.

Previous management experience ($p=0.001$), surgical specialty ($p=0.01$) and >10 years of work experience ($p=0.00$) were related to higher ratings on overall management competency. Sixty-eight per cent (84/124) indicated a need for management training. The preferred training method was a workshop (79.3%; 96/121) by extramural experts (89.3%; 108/121) as part of the postgraduate curriculum (94.2%; 141/121). The preferred topics were knowledge of the healthcare system and time management.

Conclusions: Medical specialists felt competent about their management knowledge and skills, but indicated a need for management training. The indicated preferences for the training during residency and workshop format can be helpful in designing a management training curriculum.

Keywords: Medical specialists, self-assessment, management competency, training, needs assessment

Introduction

In the last couple of years, extensive changes have been made to postgraduate specialty training programmes in response to the changing expectations of patients and the increasing demands regarding physician accountability. One of the pioneers of these innovations was the Royal College of Physicians and Surgeons of Canada who developed a competency-based framework for postgraduate specialty training. This framework comprised of the seven "roles" of physicians: Medical Expert, Communicator,

Collaborator, Manager, Health Advocate, Scholar and Professional.¹ In 1999 the Accreditation Council for Graduate Medical Education established requirements for graduate medical education programmes in the United States based on six similar competency areas: patient care, medical knowledge, practice-based learning and improvement, interpersonal skills, professionalism and systems-based practice.² Following these initiatives, specialist training bodies in other countries, have also introduced similar

competency-based frameworks in their specialist training programmes.

In 2005, programmes for postgraduate specialty training in the Netherlands started the introduction of new competency-based curricula based on the seven roles of the CanMEDS framework.³⁻⁵ Because of doubts whether adequate attention was paid to the manager role in these programmes we started our research by conducting a literature study examining the place of management training in postgraduate training programmes. This review showed that most studies were conducted in North America and revealed a need for formal management education and training among residents, fellows and physicians. Although all the existing programmes and courses were evaluated positively the studies showed no clear agreement regarding the optimal duration, timing or educational methods for management courses.⁶

The literature review yielded no studies on management training in Dutch postgraduate medical education and we therefore surveyed Dutch residents on their views regarding management training. The residents rated their management competencies as moderate and felt they lacked sufficient competence with regard to coding and billing, negotiation skills and knowledge of the healthcare system. They indicated a need for additional management training during residency preferably by medical specialists and external content experts.^{7,8}

In 1996, Walker *et al.* reported the results of a survey of 209 senior registrars and 269 consultants throughout Wales to identify their management development needs. They found that especially senior registrars appeared keen to increase their future involvement in management. The enthusiasm for greater participation by doctors in management training and development was reflected in the high number of positive responses (on average 72%). The questionnaire also required doctors to rank order managerial topics for future management courses. Overall managing a budget, medical and clinical audit, negotiating skills and leadership skills were ranked highest for inclusion in management development while project management, quality circles and equal opportunities received the lowest ratings.⁹

In another study Foulke *et al.* examined differences between specialists in academic and community hospitals in their knowledge of and attitudes towards managed care (managed care, in the U.S. context, encompasses a variety of different financial and organizational arrangements around the delivery of care services).¹⁰ Specific physician competencies related to managed care were measured on a five-point Likert scale. The mean scores were 3.65 for community physicians and 3.24 for academic physicians. The mean scores of the perceived need to adapt to a managed care environment were 3.68 and 3.74 respectively. In light of the above-described results regarding postgraduate training in

the manager role and to supplement our findings on this topic among residents, we decided to investigate medical specialists' self-perceived competencies in medical management and their need for additional training in this field. We addressed the following research questions:

- (1) How do medical specialists perceive their knowledge and level of competency in their role as manager?
- (2) Which variables, if any, influence their perceived level of management competency?
- (3) Do medical specialists perceive a need for (specific) training in order to improve their managerial competencies?

Methods

Designing the survey

In September 2010 we designed a survey to investigate medical specialists' perceptions of their management competencies based on a questionnaire we used in a previous study among medical residents.^{7,8} We modified the questionnaire so that it would suit the managerial responsibilities of specialists by deleting one item and adding two new items. We sent the new questionnaire to an expert panel consisting of two educational psychologists, two educationalists and six medical specialists. Based on the feedback from this panel, we modified some of the questions (for example by deleting items that overlapped in content). The final survey consisted of twenty questions on management competencies, which the specialist could answer by ranking their perceived competence on a 5-point Likert scale, with 1: completely disagreeing and 5: completely agreeing. There were seven items investigating the need for management education. These items also related to preferred management topics, the preferred method of instruction and the timing and duration of training. Finally there were nine questions about the demographic characteristics of the specialists *i.e.* age, gender, years of work experience (short: <11 years, long: >10 years), possession of a PhD, specialty (surgical vs. non-surgical specialties), hospital (university vs. district teaching hospitals), previous management experience (*e.g.* chairman of a committee), previous management education (*e.g.* a management course) and if they had management training at their current workplace. We were interested in these variables because based on the literature and through a brainstorm session it was thought that these variables could have a significant influence on how specialists perceived their management competencies and their training needs.

Based on previous experience, we anticipated beforehand that it would be challenging to enrol a large enough number of respondents to participate in our online survey. We therefore conducted a "compromise power analysis" to determine the minimum number of participants required to be able to generate reliable findings from the survey. Compromise power analysis is a novel concept in statistics that

can be applied in uncontrollable situations e.g., working with clinical populations or when given a specific effect size, N, is too small to satisfy conventional levels of alpha and beta (1-power).¹¹ Using this method we calculated the number of participants needed to achieve a power of 0.95, with an effect size of 0.8 and a β / α ratio of 1, assuming that the seriousness of alpha or beta errors were equivalent. The outcome showed that a minimum of 100 respondents (50 in each group) would yield a statistical power of 0.97 for our survey (Alpha= 0.05, Effect Size=0.8).

Data Collection

We emailed this survey to medical specialists from four hospitals in the Netherlands offering the same postgraduate curriculum: Atrium Medical Centre, Heerlen; Maxima Medical Centre, Veldhoven; Catharina Hospital, Eindhoven and Maastricht University Medical Centre, Maastricht. The first three hospitals are district teaching hospitals, the latter a university teaching hospital.

All participants received an email with a link to the web-based survey, using the Survey Monkey web application, inviting them to participate. The specialists were informed that the questionnaire was anonymous. The survey lasted for six weeks during which two reminders were sent in Heerlen and one in Veldhoven, Eindhoven and Maastricht. Ethical approval for the study was obtained from the hospitals' research and ethics committee (Medisch Ethische Toetsingscommissie Atrium MC).

Data Analysis

Analysis was performed using SPSS, version 18. Descriptive statistics were used to present the demographic distribution of the participants and the pattern of the responses to the items. Cronbach's alpha was used to determine the reliability of the questionnaire. Mann-Whitney tests were used to explore if there were significant differences in competency scores per item relating to gender, promotion, specialty and prior management training and experience. Multiple regression analysis was performed to determine which variables significantly influenced the overall mean scores. Chi-square tests were used to determine correlations between the perceived need for management training and gender, specialty, PhD degree holder, prior experience of and training for managerial tasks.

Results

Of the 298 specialists invited to participate in the survey, 127 responded (42.6%) and 121 of them fully completed the questionnaire. Six respondents (5.0%) failed to complete all the items, with two not completing the demographics and four stopping after filling out their perceived competencies. A technical fault in the online questionnaire (which was rectified) was the only reported reason for not completing the questionnaire. Cronbach's Alpha was 0.77, and the Corrected Item-Total Correlations were all above 0.30.

Characteristics

Specialists from twenty different specialties completed the survey, with paediatrics (20.7%) and internal medicine (19.0%) being the largest response groups. The mean age of the respondents was 47.0 years (SD=8.5) and the majority (76%) were male. The average number of years of work experience was 13.2 years (SD=9.1) (Table 1). Fifty-one per cent reported they had received prior (specific) management training. Sixty-four per cent of the specialists with more than 10 years of work experience had management education, in comparison to 40% of the specialists with less than ten years of work experience. Seventy-two per cent claimed to have had some experience in a management or leadership position, such as being a member of the hospital board. Sixty-two specialists attended at least one management course. Time management, teaching, leadership skills and communication skills were some of the frequently reported courses. Most of the specialists had attended the courses out of personal interest and some as part of a specialty related educational requirement. Fifty-six per cent reported that the postgraduate curriculum in their hospital included no specific management component.

Table 1. Characteristics of participating medical specialists in the Netherlands (N=121)

Characteristic	n (%)	Mean (SD)
Gender		
Male	92 (76.0)	-
Female	29 (24.0)	
Age	-	47 (8.5)
Specialty		
Clinical physicist	2 (1.7)	
Dermatology	3 (2.5)	
ENT specialist	4 (3.3)	
Emergency dep.	3 (2.5)	
Geriatrics	1 (0.8)	
Gynaecology	10 (8.3)	
Intensive care medicine	3 (2.5)	-
Internal medicine	23 (19.0)	
Medical rehabilitation	5 (4.1)	
Neurology	9 (7.4)	
Orthopaedics	7 (5.4)	
Paediatrics	25 (20.7)	
Radiology	7 (5.8)	
Surgery	14 (11.6)	
Urology	5 (4.1)	
Years of work experience	-	13.2 (9.1)
Previous management training		
Yes	62 (51.2)	-
No	59 (48.8)	
Previous experience in a management function		
Yes	87 (71.9)	-
No	34 (28.1)	
Management training at current workplace		
Yes	53 (43.8)	-
No	68 (56.2)	
Workplace		
Eindhoven	23 (17.8)	
Heerlen	62 (48.1)	-
Maastricht	13 (10.1)	
Veldhoven	31 (24.0)	

Table 2. Perceived management competency of specialists in the Netherlands (N=127)

Item	Mean (SD)	1*	2**	3†	4‡	5¶
Area one: The specialist finds a balance between patient care and personal development in his work						
1. Time management	3.57 (0.73)	0.8%	4.7%	38.6%	48.8%	7.1%
2. Balance patient care - practice requirements	3.56 (0.80)	0.0%	11.0%	30.7%	49.6%	8.7%
3. Balance patient care - personal life	3.37 (0.80)	0.8%	12.6%	40.2%	41.7%	4.7%
4. Giving feedback	3.58 (0.70)	0.0%	7.9%	29.9%	58.3%	3.9%
5. Handling received feedback	3.81 (0.56)	0.0%	2.4%	29.7%	72.4%	5.5%
Area two: The specialist functions effectively in the health care setting						
6. Operating in leadership roles	3.86 (0.60)	0.0%	2.4%	18.9%	69.3%	9.4%
7. Dealing with conflicts	3.63 (0.77)	0.8%	6.3%	30.2%	54.0%	8.7%
8. Leading committees or meetings	3.79 (0.78)	0.0%	6.3%	24.4%	53.5%	15.7%
9. Policy new colleagues	3.69 (0.66)	0.0%	4.7%	28.3%	60.6%	6.3%
10. Organization of the healthcare system	3.55 (0.92)	1.6%	13.4%	24.4%	49.6%	11.0%
11. Organization of a medical department	3.40 (1.10)	4.7%	18.9%	22.0%	40.2%	14.2%
12. Rights and duties	3.94 (0.63)	0.0%	2.4%	15.7%	67.7%	14.2%
13. Errors made myself	3.96 (0.60)	0.0%	2.4%	12.6%	71.7%	13.4%
Area three: The specialist allocates finite healthcare resources appropriately						
14. Allocating resources based on EBM	3.98 (0.59)	0.0%	2.4%	11.0%	72.4%	14.2%
15. Allocating resources based on availability	3.75 (0.69)	0.0%	4.7%	25.2%	60.6%	9.4%
16. Preventive healthcare	3.98 (0.66)	0.0%	2.4%	15.7%	63.8%	18.1%
Area four: The specialist uses information technology appropriately to deliver optimal health care and to maintain and keep up medical knowledge						
17. Using information technology	4.01 (0.75)	0.0%	4.7%	13.4%	58.3%	23.6%
18. Updating medical knowledge	4.29 (0.64)	0.0%	1.6%	5.5%	55.1%	37.8%
19. Coding and billing	3.78 (0.86)	0.8%	7.9%	22.0%	51.2%	18.1%
20. Improving quality processes	3.61 (0.78)	0.0%	7.9%	33.9%	48.0%	10.2%

* Completely disagree; ** Disagree; † Neutral; ‡ Agree; ¶ Completely agree

Table 3. Differences in mean score of competency based on independent variables in the Netherlands (N=121)

Variable		Mean	SD	P value
Gender				
Leadership skills	Male (n=92)	3.96	0.53	0.005
	Female (n=29)	3.55	0.69	
Management education				
Leading a committee	Previous education (n=62)	4.00	0.75	0.002
	No previous education (n=59)	3.58	0.77	
Organization of the healthcare system	Previous education	3.79	0.89	0.003
	No previous education	3.32	0.82	
Organization of a medical department	Previous education	3.66	1.09	0.009
	No previous education	3.20	1.00	
Previous management experience				
Leadership skills	With experience (n=87)	3.97	0.56	0.002
	Without experience (n=34)	3.59	0.61	
Leading a committee	With experience	4.06	0.64	<0.001
	Without experience	3.12	0.73	
Specialty				
Organization of a medical department	Surgical (n=41)	3.83	0.89	0.001
	Non-surgical (n=80)	3.24	1.09	
Coding and billing	Surgical	4.10	0.86	0.005
	Non-surgical	3.65	0.83	

Perceived competency

The competency ratings are all listed in Table 2. The specialists rated their management competency as moderate (Mean=3.72, SD=0.32), with lowest ratings on “balance patient care and personal life” (Mean= 3.37, SD=0.80) and highest ratings on “updating medical knowledge” (Mean=4.29, SD=0.64).

Variables influencing the perceived management competency

Table 3 shows that the male respondents (n=92) gave significantly higher ratings than their female counterparts (n=29) on one item relating to ‘the specialist functions effectively in the health care setting’: “Leadership skills” (Mean= 3.96, SD=0.53 vs. Mean=3.55, SD=0.69; p=0.005). Specialists who had attended a management course (n=62) gave higher ratings on: “Leading a committee”, “Knowledge of healthcare organization” and “Knowledge of organization of department”. Specialists with management experience (n=87) had significantly higher ratings compared to their colleagues without such experience (n=34) on two competency items in the second area of management skills: “Leadership skills” and “Leading a committee”. Specialists from non-surgical specialties (n=80) rated their management skills and knowledge lower compared to specialists from surgical specialties (n=41) on two items: “Knowledge of organization of a department” and “Coding and billing”.

Since nearly 40% of the medical specialists that responded were internists and paediatricians, we used a Mann-Whitney test to check if these two groups perceived their competencies significantly different from their colleagues in the non-surgical group because this could distort our results. The test showed no significant difference between the groups on any item.

Multiple regression analysis

Previous management experience was related to higher ratings on overall management competency (p=0.001) and surgical specialty was related to higher ratings on management competency than non-surgical specialty (p=0.01). More years of work experience (Median = 11 years) was related to higher competency ratings compared to fewer years of experience (<11 years) (p=0.00). Other variables showed no significant impact on the mean score.

Needs assessment

In the needs assessment, 68% of the respondents reported a need for education in medical management (n=84). Of these, 68 agreed that management education could improve the competency of physicians as managers in the healthcare setting. Of the 127 respondents, 121 (94%) answered the question ‘In what topics would you like to be trained?’ The most frequently selected topics were health care system (n=98) and time management (n=89), and the least popular

topics were ‘health care on population level’ (n=16) and ‘medical computer systems’ (n=13) (Figure 1). With regard to their preferences for instructional methods, the respondents favoured a medical management course, with the most popular formats being ‘Workshop’ (n=96) followed by coaching and feedback from supervisors/experts (n=71) (Figure 2). The respondents preferred ‘external instructors or experts’ (n=108) and ‘medical specialists’ (n=94) as course instructors, and one-third chose ‘hospital managers’ as preferred training instructor (n=42). The item about the duration of training asked the respondents to fill in a fixed number of hours per day, week, month or year. Of the 120 specialists who entered at least one option, fourteen gave more than one answer. The most frequently selected duration was 1-5 hours a month (n=29) or 5-10 hours a day (n=20). The best time for training in medical management (timing) was considered to be during residency training (n=114). Finally, the specialists who had previous management experience perceived an increased need for management training (p=0.03) compared to their colleagues without management experience.

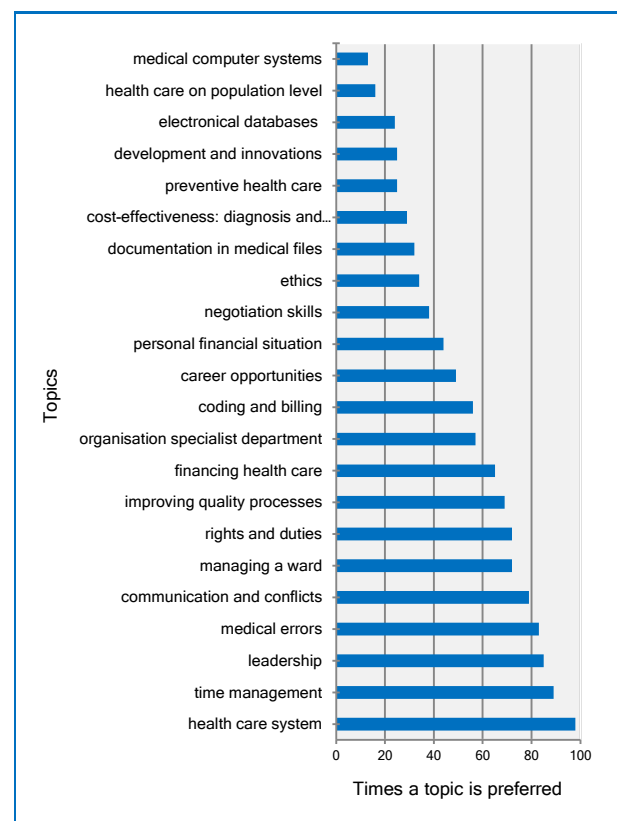


Figure 1. Preferred training topics in the Netherlands (N=127)

Discussion

We conducted an online survey on medical specialists' self-perceived level of (teaching) competency in medical management. As the information on this subject in the literature was sparse, we set out to answer three research questions relating to specialists' knowledge and competency relating to their role as manager, variables influencing that

competency level and specialists' perceived need for training to improve their managerial competencies. The participating specialists rated their management competency overall as moderate to good (Mean=3.72; SD=0.32). This is similar to the results reported by Foulke et al. of 3.52 (SD=0.86) on a five-point Likert-scale for knowledge of managed care. Although the questions in that study differed from those in our questionnaire, they too measured specialists' perceived competency in the area of practice management and the results also suggest that medical specialists generally perceived their management competency to be good.¹⁰

The results of our study showed that certain variables had a significant impact on specialists' perceived managerial competencies. Surgical specialty, male gender, prior management experience and prior management training all showed a positive impact on perceived competency. Multiple regression analysis supported these findings with significant correlations between overall competency and previous management experience ($p=0.01$), work experience ($p<0.01$) and speciality ($p=0.01$). Although we expected that work experience and management experience would have a positive impact on competency ratings, we have no explanation for the higher ratings given by surgical specialists compared to non-surgical specialists. Unfortunately, our samples were not large enough to perform a subgroup analysis. The fact that management training had no significant influence on overall perceived competency suggests that the current management courses do not meet specialists' perceived training needs.

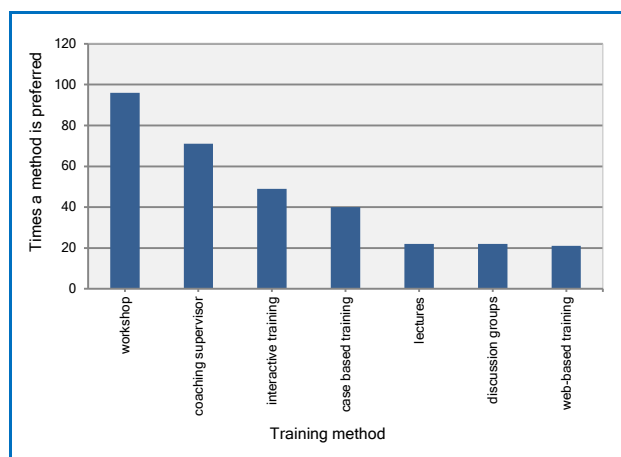


Figure 2. Preferred training methods in the Netherlands (N=127)

The perceived need for management education by the participants in our survey (68%) was similar to the results from Walker et al. (72%).⁹ The respondents indicated a preference for a workshop as the method of instruction and for external instructors or medical specialists as teachers. Furthermore, they felt that coaching and direct feedback were good ways of teaching management skills. There was, however, no consensus on the preferred duration of training. The most frequently mentioned topics for training were knowledge of the health care system, time management and

leadership. It is interesting to compare these results to the needs assessment we conducted among residents last year. They also felt that the best timing for management training would be during residency, in the format of a workshop, given by medical specialists or extramural experts. The topics they chose however, were somewhat different in comparison to the preferences of the medical specialists (i.e. negotiation skills, specialist partnerships and knowledge of the healthcare system).⁸ An explanation for this could be that the managerial tasks between the two groups differ and that with more years of work experience specific managerial knowledge is acquired, hence the need for education in those fields probably disappears over the years.

Since the residents and specialists felt that there was a need for management education during the residency training period and both preferred that the training should be given in a workshop format one may conclude that our findings suggest the need for developing and implementing a management education curriculum during postgraduate specialty training and probably as early as the undergraduate training period.

Further analysis of our results also revealed an association between the need for management education and management experience. Prior management experience was associated with a higher perceived need for (additional) education. Seemingly counter-intuitive we think that this finding can be explained by an increased awareness of the value and importance of practice management or medical management education following actual managerial decision-making encounters in clinical practice.

There are a few limitations worth mentioning about this study. First of all, the response rate of 42.6% was not as high as we had hoped for, but there is evidence that a response rate of 35-50% is an acceptable rate for studies using electronic questionnaires.^{12,13} We should bear in mind though that due to this relatively low response rate our results may have been subject to bias and therefore may not quite accurately reflect the real situation.

The study was also limited to four hospitals in the Netherlands and may therefore not be truly representative of the situation in the country as a whole, although we think it is unlikely that the respondents' opinions would differ significantly from those of their colleagues in other Dutch hospitals, since until recently management training was not a real concern among medical specialists in the Netherlands.

Another limitation of our survey is that we did not measure the respondents' managerial skills and knowledge objectively but only asked them about their self-perceived knowledge and competencies. Finally the questionnaire reported in this study was combined with a survey of specialists' perceptions of the role of residents as managers in the healthcare setting. This may have caused misinterpretation of certain items by the respondents, although the data analysis showed no evidence of an effect of this on the final results of the survey.

Conclusions

This study of Dutch medical specialists' perceptions of their management competency shows that medical specialists generally feel competent in management skills and knowledge. Nevertheless, the majority reported a need for management training and the preferred topics of training are knowledge of the healthcare-system and time management. Although management skills were not measured objectively in our study, the findings show a clear need for improving, intensifying and organising formal management education for (future) medical specialists.

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Conflict of Interest

The authors declare that they have no conflict of interest.

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