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Educational objectives and requirements of an undergraduate clerkship in general practice. The outcome of a consensus procedure

Floor MJG Martens, Cees PM van der Vleuten[a], Richard PTM Grol, Jos MH op 't Root, Harry FJM Crebolder and Jan-Joost Rethans

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Objectives. The main aim of this study was to reach consensus between students, faculty and general practice teachers on the educational objectives and requirements of the clerkship in general practice.

Method. The consensus procedure consisted of four steps and all active general practice teachers ($n = 116$) were asked to participate in the study.

Results. We identified 189 educational objectives: 127 complaints (problems, symptoms, syndromes), 29 clinical skills and 37 objectives concerning the theoretical dimensions of general practice. Educational requirements crystallized to 16 essential preconditions of a teaching practice and 35 didactic activities to be performed by the general practice teachers.

Conclusions. These consensus results will be used to structure the medical curriculum and as guidelines for the educational process during the clerkship.

Keywords. Clerkship in general practice, educational objectives and requirements, undergraduate.

Introduction

At present, the increasing recognition of general practice as an independent academic discipline has, in most medical schools, resulted in the introduction of an obligatory clerkship in general practice as one of the core components of a student's clinical education. In turn, this has increased the importance of defining the content of the obligatory clerkship through the development of curricular guidelines. The content of clerkships can largely be considered as a 'black box' which urgently needs to be analysed. Many efforts to develop curricular guidelines have been undertaken by faculty at various medical schools.[1,2] However, research showed that trying to influence the activities of students during their work experience periods (clerkships) by setting curricular guidelines alone often seemed to be ineffective.[3] This was probably due to a lack of intrinsic motivation of those who had to implement the guidelines.[4] Seldom have members of the target group, who are important for the implementation of the guidelines, been involved in their development. Until now, research has paid relatively little attention to what actually happens at practice sites and which didactic activities clinical teachers perform.[5] The aim of our study was to reach consensus between students, faculty and general practice teachers on the educational objectives and requirements (didactic activities and essential preconditions) of a 12-week clerkship in general practice.

To increase intrinsic motivation and the likelihood of implementing these objectives and requirements later on, all the general practice teachers in the field were involved in the study. The consensus results will be used to structure the medical curriculum. Other medical schools too can benefit from these results. The most important difference between the various medical schools is the length of their undergraduate clerkship in general practice. Consequently, only the level of competence achieved by the students concerning the agreed educational objectives will vary.

Methods

During the academic year 1991/1992 all active general practice teachers of the Medical School in Maastricht

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Department of General Practice, Maastricht University, PO Box 616, 6200 MD Maastricht and [a]Department of Educational Development and Research, Maastricht University, Maastricht, The Netherlands.

TABLE 1 *Complaints (problems, symptoms, syndromes), defined as educational objectives of a clerkship in general practice, and the consensus percentages of the general practice teachers (n=89) concerning the items to be observed (obs) or to be managed by the student autonomously (aut)*

	obs	aut
1. General		
1. Pain (unspecified)		75.9
2. General weakness, tiredness		81.6
3. Fever		86.2
4. Fainting, loss of consciousness	94.2	
5. Allergic reaction	94.3	
6. Adverse effect medical agent (proper dose)	90.8	
7. Medicalization*		
8. Profit by disease*		
9. Complication of medical treatment	92.0	
10. Disability/impairment (in general)	90.9	
11. Anaemia	85.2	
12. Nausea and vomiting		78.4
13. Generalized abdominal pain		93.3
14. Dizziness		87.6
15. Pain in the chest		87.6
16. Shortness of breath		84.3
17. Back complaints		93.3
18. Muscle pain		85.4
19. Headache		92.1
20. Itching	95.5	
21. Weight loss	93.2	
2. Blood		
22. Enlarged lymph glands	92.0	
3. Digestive		
23. Abdominal cramps		76.4
24. Stomach pain		87.5
25. Heartburn		78.7
26. Belching	97.8	
27. Swallowing problems	78.4	
28. Flatulence	84.3	
29. Diarrhoea		79.8
30. Constipation		79.5
31. Anal pain	87.6	
32. False urge	85.4	
33. Perianal itching	96.6	
34. Jaundice**	73.0	
35. Vomiting blood	76.1	
36. Rectal bleeding	91.0	
37. Melaena	78.7	
38. Change in faeces	89.9	
39. Abdominal distension	83.1	
4. Eye		
40. Eye pain	89.7	
41. Red eye		92.1
42. Discharge from eye	98.9	
43. Problems with vision**		70.8
44. Itching eye	97.8	
5. Ear		
45. Ear pain		93.7
46. Tinnitus	91.0	
47. Discharge from ear	100.0	
48. Hearing complaints	83.1	
6. Circulatory		
49. Palpitations		76.4
50. Oedema		85.4
51. Prominent veins**		68.5
52. Pain in calf	89.9	
53. Hypertension		93.3
7. Musculoskeletal		
54. Low back complaints		95.5
55. Neck complaints		95.5
56. Shoulder complaints		92.1
57. Arm/elbow/wrist/hand and fingers complaints		85.4
58. Hip complaints		85.4
59. Knee complaints		89.9
60. Ankle/foot and toe complaints		91.0
61. Multiple joints complaints	92.1	
8. Neurological		
62. Migraine	94.4	
63. Pain in face	75.3	
64. Restless legs	83.1	
65. Tingling fingers/toes	80.7	
9. Psychological and social		
66. Fear of serious disease**		66.3
67. Fear of death	88.8	
68. Feeling anxious/nervous		85.4
69. Anxiety state	91.0	
70. Feeling depressed	98.9	
71. Disturbances of sleep**		70.5
72. Sexual and relationship problems	84.3	
73. Incest**	59.6	
74. Abuse problems**	70.8	
75. Occupational problems	92.1	
76. Loneliness problems	89.8	
77. Bereavement problems	84.3	
78. Problems due to ill-treatment**	60.7	
79. Anorexia nervosa/bulimia**	56.2	
10. Respiratory		
80. Cyanosis	87.5	
81. Wheezing		89.9
82. Cough		93.3
83. Haemoptysis	91.0	
84. Voice complaints	94.4	
85. Throat complaints		93.3
86. Runny nose		86.5
11. Skin		
87. Warts	87.6	
88. Localized swelling		75.3
89. Rash		88.8
90. Changes in skin colour	89.8	
91. Localized skin infection		86.5
92. Insect bite	94.4	
93. Animal/human bite	89.9	
94. Burns	94.5	
95. Laceration/cut		76.4
12. Endocrine, metabolic and nutritional		
96. Excessive thirst	85.4	
97. Loss of appetite**		51.7
98. Weight gain**		56.2
99. Dehydration	84.3	
100. Slowness**	74.2	
101. Agitation	83.1	

TABLE 1 *Continued*

	obs	aut
13. Urology		
102. Painful urination		87.6
103. Frequent urination		88.8
104. Incontinence of urine		77.5
105. Dribbling	95.5	
106. Blood in urine	94.4	
107. Kidney position painful	93.3	
108. Colic pains	97.8	
14. Female genital system		
109. Problems during pregnancy	75.3	
110. Problems after the delivery	77.5	
111. Family planning		82.0
112. Complaints of infertility	79.8	
113. Menstruation problems		83.1
114. Menopausal complaints		83.0
115. Vaginal discharge		85.4
116. Breast problems		77.5
15. Male genital system		
117. Complaints of testis and scrotum	94.4	
118. Discharge from penis	88.8	
16. Geriatric problems		
119. Dementia	92.1	
120. Falling problems	82.0	
121. Walking problems (excl. falling)*		
122. Problems with daily care*		
17. Problems with children		
123. Eating problems, first year	85.4	
124. Growing problems**	55.2	
125. Behaviour problems**	71.6	
126. Delayed development**	61.8	
127. Bedwetting	89	

*Item added by general practice teachers.
**Item added by panel.

TABLE 2 *Clinical skills, defined as educational objectives of a clerkship in general practice, and the consensus percentages of the general practice teachers* (n=89) *concerning the items to be observed (obs) or to be managed by the student autonomously (aut)*

	obs	aut
1. Somatic skills		
1. General examination of the neonate	86.5	
2. Measuring blood pressure		96.6
3. Evert eyelids	86.4	
4. Vaginal examination		89.8
5. Speculum examination		87.5
6. Rectal examination		91.0
7. Otoscopy	96.6	
8. Hearing examination with tuning fork		80.9
2. Investigative and laboratory skills		
9. Assessment of the pulmonary capacity by measuring the peak flow		80.9
10. Examination of the cornea by fluorescence	91.0	
11. Making a cervical smear		82.0
12. Pregnancy test	85.4	
13. Genital secretion test	91.0	
14. KOH-test of the skin	85.2	
15. ESR	78.7	
16. Hb	79.8	
17. Blood glucose		77.5
18. Urine sediment		82.0
3. Therapeutic skills		
19. Removal of foreign body from eye	91.0	
20. Syringing the ear to remove wax		83.1
21. Suturing a wound with glue	94.4	
22. Suturing a wound with stitches	93.3	
23. Removal of stitches		84.3
24. Excision of sebaceous cyst**	71.9	
25. Removal of warts**		65.9
26. Extraction of a nail**	70.8	
27. Incision of an abscess	84.3	
28. Giving injections		78.7
29. Bandaging	84.3	

*Item added by general practice teachers.
**Item added by panel.

(*n*=116) were asked to participate in the study. The procedure consisted of four steps. First, a list was composed of educational objectives and requirements based on national and international literature.[6–8] Second, the items of this list were presented to a panel of 10 experts, using a structured consensus procedure.[9] The panel consisted of two general practice teachers, two medical students, two general practice supervisors (staff of the Department of General Practice), two clinicians, one educationalist and one staff member of another Dutch Department of General Practice. A new list resulted in 213 educational objectives and 56 educational requirements. Third, this list was sent to all general practice teachers in the form of a questionnaire.

The items were judged on desirability for the students and on feasibility for the general practice teachers. As a final step, the panel of experts made definitive decisions, again using a structured consensus procedure.

Educational objectives

The educational objectives were subdivided into three parts. The first part consisted of 135 complaints (problems, symptoms, syndromes), divided over 17 categories: 15-ICPC categories (International Classification of Primary Care[7]) and two additional categories (see Table 1). Under category 16, 'geriatric problems', and 17, 'problems with children', only those items were classified which are very specific for these groups (not items with a high incidence or prevalence rate in these populations: e.g. otitis media acuta in children). The second part consisted of 38 clinical skills, divided over three categories (see Table 2). Concerning complaints (problems, symptoms, syndromes) and clinical skills, the general practice teachers were asked to indicate, first, the desirability of the items as educational

objectives for students following a clerkship in general practice, second, where students should learn these items (during the tutorial day or in a general practice) and third, the desired level of competence (observation or independent self-management). The third part of the educational objectives consisted of 40 items on theoretical dimensions of general practice: e.g. objectives related to clinical epidemiology and decision making, continuity of care and consultation skills (see Table 3). The general practice teachers judged the items on desirability for the students. They also indicated whether they had to teach these theoretical dimensions (didactic task) or whether the faculty of the medical school should do so during the tutorial day.

Educational requirements

The questionnaire on educational requirements consisted of two parts. In the first part 18 essential preconditions of a practice site were presented: e.g. the availability of instruments, books and journals for the student; patient supply; the opportunity to join meetings (see Table 4). In the second part 38 didactic activities required of a general practice teacher were offered: e.g. discussion of student's problem-orientated medical records; observation by the student (general practice teacher as a role model); observation of the student (see Table 4). Concerning these educational requirements the general practice teachers were asked to assess the items on desirability for students (on a 5-point Likert scale) and on feasibility for general practice teachers (yes/no scale).

Space was available for other comments on any item or for the addition of items.

Analysis

The frequency of each item in the different parts of the educational objectives and requirements (nominal variables) was determined. For the Likert scale items the mean was used. The consensus limit was set at 75% agreement in accordance with a national evaluation report on clinical clerkships in the Netherlands.[10] This means that an item was dropped when less than 75% of the general practice teachers agreed to it. The structured consensus procedure of the panel of experts had the same consensus limit of 75%.

Results

Completed questionnaires were returned by 89 (77%) of the 116 general practice teachers. The non-respondents (27) were mainly general practice teachers who had decided, for various reasons, to stop training students, whether temporarily or permanently. Five general practice teachers collaborating in a health centre returned two questionnaires instead of five (Table 5).

Educational objectives

Of the 135 presented complaints (problems, symptoms, syndromes) 127 were judged by the general practice teachers as relevant educational objectives, which students should encounter in a general practice. As Table 1 shows, 43% of the complaints should be managed by the student autonomously, while the majority (57%) should at least be observed by the student. The complaints to be managed autonomously mostly have a high incidence rate in general practice. Items with a complex or extensive differential diagnostic are equally divided over the columns 'to be observed' and 'to be managed autonomously'. Table 5 presents the consensus percentages of the general practice teachers and shows the items added by the GPs or by the panel of experts.

As shown in Table 2, 29 of the 38 presented clinical skills were considered as relevant educational objectives; 52% of these should be performed by the students autonomously, and the remainder should at least be observed. In contrast with complaints, many skills which are frequently performed in general practice (e.g. ESR, Hb, pregnancy test, genital secretion test, suturing a wound) were not judged as being obligatory for students to perform autonomously. Table 3 presents the theoretical dimensions of general practice. Three of 40 items were regarded as not very relevant; the category 'practice management' was eliminated completely. Table 2 shows also that the general practice teachers regarded 27 items as a didactic task for themselves. The panel of experts added a didactic task for the general practice teachers on six items. Four educational objectives (task and working-method of primary care workers) are supposed to be learned during the tutorial day.

Educational requirements

Table 5 shows that 16 of 18 essential preconditions of a teaching practice were considered as educational requirements, to be complied with by the general practice teachers. Of the didactic activities 35 of 38 should be performed by the general practice teachers. Table 5 also shows that three items were assigned as not desirable for the student, although the general practice teachers indicated that all items were feasible for them. The panel of experts finally decided that these three items were to be kept as educational requirements.

Discussion

The main result of our study was the development of a list of educational objectives and requirements for an undergraduate clerkship in general practice which is supported by the majority of the general practice teachers in the field. In 1994, the list of educational objectives was used in a national report on the objectives of undergraduate medical education in the Netherlands,

TABLE 3 *Theoretical dimensions of general practice, defined as educational objectives of a clerkship in general practice and the consensus percentages of the general practice teachers (GPTs) (n=89) concerning the items with a didactic task for the GPTs*

	Task
I Clinical epidemiology and decision-making	
1. The a priori likelihood of having a disease based on incidence and prevalence rates**	59.6
2. The predictability of a test based on sensitivity, specificity and prevalence rates**	57.3
3. The consequences of clinical decision-making on daily medical practice	75.3
II Continuity of care	
4. The influence of possible psycho-social factors on patients' illness and illness behaviour	98.9
5. The influence of the environment on patients' coping behaviour concerning problems and diseases	96.5
6. The consequences of a disease on patients' work	96.6
7. The consequences of a disease on patients' environment	96.6
8. GPs' psycho-social management of patient problems	95.5
9. The doctor–patient relationship in a process of somatic fixation	87.5
10. The follow-up of a patient	97.7
III Consultation skills and the interrelatedness of somatic, psychological and social factors	
11. Clarification of request for help	93.3
12. Definition of the problem, ideally together with the patient	93.3
13. Be aware of personal functioning, norms and values and their possible influence on the student–patient relationship and on the course of the consultation	84.1
14. Drafting provisional hypotheses based on the request for help	95.5
15. Checking the provisional hypotheses by directed case history taking and directed examination	94.3
16. Drawing up a problem definition (including request for help, relevant psychosocial factors and relevant medical findings derived from case history and examination)	93.2
17. Drafting various therapeutic plans or actions based on the problem definition	94.3
18. Informing the patient about the various therapeutic alternatives	93.1
19. Evaluating the consultation together with the patient	81.8
IV Risk profiles, monitoring and prevention	
20. Systematic tracing of patients at risk**	50.0
21. Systematic monitoring of chronic patients**	64.8
22. Drawing up an individual risk profile based on risk factors**	60.2
23. Influencing a high-risk life style**	67.0
V Co-operation	
24. Collaboration with primary care workers	
a. District nursing	94.3
b. Family welfare	84.1
c. Social work	88.6
d. Physiotherapy	93.2
e. Midwifery	87.6
25. Task and working-method of primary care workers	
a. District nursing	
b. Social work	
c. Physiotherapy	
d. Midwifery	
26. Collaboration with the pharmacist	78.4
27. Collaboration with clinical health care workers	91.0
28. Considerations on referring a patient (the duty of the GP to sieve)	96.6
29. Co-ordination of the care delivered (the GP as pivot)	92.1
30. The cost of prescriptions, diagnostics and referrals	77.5

**Item added by the panel.

composing the part on general practice.[11] This may illustrate the validity and the generalizability of our study. The most important difference between various medical schools will be the level of competence achieved at the end of the clerkship, because of the variation in length.

We tried to reach consensus on objectives and requirements not only among our panel of experts, but also among the general practice teachers in the field. Consensus among the panel of experts was important for the authorization and validity of the lists of educational objectives and requirements developed. It was important to reach consensus among the general practice teachers in the field on desirability for the students and on feasibility for the teachers themselves. In addition, a consensus procedure among general practice teachers increases their involvement and intrinsic motivation and increases the chance that these teachers will implement these educational objectives and requirements.[4]

Originally the first part of the educational objectives also contained diseases. However, the panel of experts decided to omit the diseases, since during the clerkship in general practice the students will be confronted with patients with complaints (problems, symptoms, syndromes) and not with diseases. The complaints to be managed independently mostly have an incidence rate in general practice of >5/1000 patients/year. The remainder are thought to be important, despite their lower incidence and prevalence rates, because of their severity

TABLE 4 *Educational requirements of a teaching practice and the consensus percentages concerning the feasibility of the general practice teachers (GPTs) (n=89), concerning the feasibility of the items*

	Feasible
I Essential preconditions	
1. A separate room for the student to examine the patient	95.4
2. Instruments for the student:	
a. Otoscope	98.8
b. Blood pressure meter	98.8
3. Literature at the practice available for the student:	
a. Protocols of the Dutch Association of GPs (cards)	97.7
b. Protocols of the Dutch Association of GPs (extended)	91.6
c. Family medicine textbook	88.8
d. *Nederlands Tijdschrift voor Geneeskunde* (Dutch Journal of Medicine)	88.8
e. *Huisarts en Wetenschap* (Dutch journal: GP and Science)	75.3
4. Patient supply for the student:	
a. No selection	100.0
b. Well-balanced mix	98.9
c. At least 125 autonomous patient contacts	98.9
d. At least 10 independent home visits	95.4
e. At least 10 patients to follow up**	97.7
5. Giving the opportunity to participate in weekend shifts for at least 48 hours**	87.2
6. Giving the opportunity to join meetings with:	
a. Home team	84.7
b. Primary care workers	93.0
II Didactic activities	
7. Time:	
a. Fixed time for the follow-up discussion	87.1
b. Follow-up discussion every day	85.7
c. At least five observations by the GPT of complete consultations of the student	90.9
8. Having knowledge of the goals, the content and the design of the clerkship	97.7
9. Letting the student complete the problem-orientated record before conferring with the GPT.	95.4
10. Finishing the consultation in presence of patient and student	96.6
11. Concerning the follow-up discussion:	
a. Using the problem-orientated records as a starting point for follow-up discussions	100.0
b. Using needs/questions of the student as guidelines for the follow-up discussion	100.0
c. Using the protocols of the Dutch association of GPs during the follow-up discussion	97.7
d. Leading the follow-up discussion**	100.0
e. Making agreements on the learning goals of the student	100.0
f. Monitoring agreements concerning the learning goals	98.9
12. Giving information concretely and adequately dosed	94.2
13. Giving the student feedback:	
a. Positive	100.0
b. Negative	98.8
c. Concerning directed and systematic working	98.9
d. Concerning managing the doctor–patient relationship	98.9
e. Concerning somatic skills	100.0
f. Concerning psycho-social skills	100.0
g. Concerning medical problem-solving skills	98.9
h. Concerning knowledge	96.6
i. Concerning writing problem-orientated records	100.0
j. Concerning writing prescriptions	92.0
k. Concerning writing referrals	92.9
l. Concerning reflecting upon his/her own functioning	97.7
14. Having interim progress discussions	97.7
15. Making explicit the GPT's own medical problem-solving	98.9
16. Bringing up for discussion the GPT's own medical problem-solving	98.9
17. Giving the student the opportunity to observe the GPT during consultations and home visits (being a role model)	98.9
18. Giving the student responsibility as far as he/she can bear it	97.7
19. Discussing with the student emotions evoked by patient contacts	100.0
20. Keeping promises and agreements with the student, also concerning the time	100.0
21. Receiving feedback of student, faculty and/or co-ordinator	100.0
22. Handling the GPT's own emotions, norms and values in contact with the student	100.0
23. Participating educational training activities	100.0

**Item not desirable for the student, according to the GPTs, although feasible, and added by the panel.

TABLE 5 *The number of educational objectives and requirements before and after the consensus procedure*

	Before	After
Complaints (problems, symptoms, syndromes)	135	127
Clinical skills	38	29
Theoretical dimensions	40	37
Essential preconditions	18	16
Didactic activities	38	35

or their urgent need for treatment. Most of the educational objectives deleted in the consensus procedure might better be learned during other clerkships. The theoretical aspects of practice management might be more relevant as a topic for vocational training in general practice. The same holds, at the moment, for the audiovisual recording of students' consultations.

A point of discussion is the arbitrary consensus limit of 75%. We decided to link up with a national evaluation report on clinical clerkships,[10] although the agreement level is rather low. If we had put the consensus limit at 80%, fewer educational objectives and requirements would have resulted. To be specific, this would have amounted to 12 fewer complaints (problems, symptoms, syndromes) overall and 13 fewer complaints to be managed autonomously, three fewer clinical skills overall and three fewer skills to be performed independently, one item less in the theoretical dimensions and two items less involving a didactic task for the general practice teacher. Finally, one item of the essential preconditions would not be feasible for the general practice teachers. Altogether the alterations are not dramatic. The most important difference is the reduction in the percentage of complaints to be handled autonomously.

One of the advantages of developing concrete educational objectives and requirements is the clarity it provides to internal and external faculty. In addition, educational committees may use the objectives and requirements for structuring the medical curriculum. What is more important, however, is that both general practice teachers and students can use the objectives and requirements as guidelines for the educational process during the clerkship. By keeping a logbook of the educational objectives for the student, which is signed by the general practice teacher, both can be made responsible for the achievement of the objectives. The data of the student logbook records might also be valuable for future evaluation studies.

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