Assessment of management in general practice: validation of a practice visit method

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SUMMARY

Background. *Practice management (PM) in general practice is as yet ill-defined; a systematic description of its domain, as well as a valid method to assess it, are necessary for research and assessment.*

Aim. *To develop and validate a method to assess PM of general practitioners (GPs) and practices.*

Method. *Relevant and potentially discriminating indicators were selected from a systematic framework of 2410 elements of PM to be used in an assessment method (VIP = visit instrument PM). The method was first tested in a pilot study and, after revision, was evaluated in order to select discriminating indicators and to determine validity of dimensions (factor and reliability analysis, linear regression).*

Results. *One hundred and ten GPs were assessed with the practice visit method using 249 indicators; 208 of these discriminated sufficiently at practice level or at GP level. Factor analysis resulted in 34 dimensions and in a taxonomy of PM. Dimensions and indicators showed marked variation between GPs and practices. Training practices scored higher on five dimensions; single-handed and dispensing practices scored lower on delegated tasks, but higher on accessibility and availability.*

Conclusion. *A visit method to assess PM has been developed and its validity studied systematically. The taxonomy and dimensions of PM were in line with other classifications. Selection of a balanced number of useful and relevant indicators was nevertheless difficult. The dimensions could discriminate between groups of GPs and practices, establishing the value of the method for assessment. The VIP method could be an important contribution to the introduction of continuous quality improvement in the profession.*

Keywords: assessment; practice management; practice visit; quality improvement; taxonomy; indicators.

Introduction

ONE of the key issues in promoting the quality of care in general practice and primary care teams is offering GPs feedback on their clinical competence and performance, based on objective data to reduce unacceptable variation. So far, valid and reliable methods have been developed for assessing, for instance, clinical performance,[1,2] clinical competence,[3-5] medical knowledge,[6] and consultation competence.[7-10] A valid and reliable method for assessing practice management that must complete

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this set of assessment methods is still lacking, even though practice management is increasingly perceived as an important prerequisite for good quality of clinical care. In a Dutch consensus study, 'practice management' was defined as 'all aspects of the GP's task to achieve good care, excluding clinical care or treatment of patients',[11] and it concerns premises and equipment, delegation to staff and collaboration with other care providers, service and organization, administration, and organizing quality improvement.[12] Poor management often results in a lower standard of clinical care.[13] Berwick[14] put it in everyday terms: '...a result lost, a specialist who cannot be reached, a missing requisition, a misinterpreted order, a vanished record, a long wait for a CT-scan; these are all too familiar examples of waste, rework, complexity and error in a doctor's life...' For the average doctor, quality fails when the system fails.

Practice visit methods are increasingly used in English speaking countries; for example, in Australia,[15] UK,[16,17] Canada,[18] and New Zealand.[19] This ubiquitous use is surprising, since research on the validity and reliability of these methods is still in its infancy.[20] Ideally, a valid and reliable method for assessing practice management — just like any other assessment method — demands development from and coverage of a well-defined 'domain'; i.e. the field it should cover. This would permit the selection of a balanced number of indicators for every dimension or aspect of that domain.[21] Every indicator should firstly be relevant for the purpose of quality assessment, and ideally be based on guidelines for good clinical practice. Besides good coverage by relevant indicators, such a method should also be reliable. The selection of indicators from a framework of theoretically seen, meaningful dimensions, should ideally be confirmed empirically.[22] Scores for these dimensions should also permit discrimination between practices with different organizations or between GPs with different styles of management. To gain acceptance in the profession, a clear notion of the validity and reliability of practice visit methods will be increasingly important, not just for the target group: the GPs. Therefore, a study was set up to evaluate an assessment method covering the domain of management in general practice.

Method

The framework for practice management and the practice visit method

To develop a valid visit method we first studied the literature and interviewed experts in the field, to identify relevant elements of practice management and to establish the main chapters and their subdivision.[16-19,23-25] Using a structured consensus procedure involving 40 GPs, concrete and relevant elements belonging to the domain of Dutch general practice management (Box 1) were selected and included in a systematic framework (Box 2). This framework comprised 2410 different elements of practice management — procedures, functions, tasks, and objects — arranged into six chapters and 17 theoretical dimensions (first column, Table 3).[11,12,18] It enabled us to select 284 indicators that could be expected to be discriminative between GPs and practices and that could be assessed without difficulty in the visit method.[26]

The development and the procedure of the practice visit method (visit insrument to assess practice management [VIP])

The Netherlands has a total of 7170 GPs (equivalent to one GP per 2274 patients)[45]

Male GPs	87%
Female GPs	13%
GP trainers	14%
Single-handed GPs	49%

The GP has a role as 'gate keeper', referring only 6% of all health problems presented to a medical specialist.[46] They generally work independently, own their own premises, and are always assisted by a receptionist/practice assistant, specially trained to combine both functions. Although 49% of the GPs still work single-handedly, many of them have a GP trainee and/or employ a (usually younger and female) GP. All GPs cooperate in GP groups or locum groups — ideally consisting of eight to 10 GPs — which coordinate emergency care (7×24 hours), home care, cooperation with other care providers, and quality improvement.

About 20% of the GPs work in group practices, half of which are health centres with (mostly salaried) GPs together with district nurses, social workers, and physiotherapists. Dutch GP surgeries have small laboratories and mostly rely on external facilities for diagnostic procedures. A diminishing proportion (11%) have a dispensing practice. An average of 60% of the patients pay a capitation fee (Dfl 130 per annum); the remaining 40% are privately insured (fee for service).

Box 1. General practice in the Netherlands.

1. Defining content and structure of the domain
• Interviewing of experts; search of the literature to identify aspects and to structure the basic framework
• Completion of the framework encompassing detailed objects, tasks, and performance
• Written consensus procedure on the framework presented as a checklist (80% agreement; 40 GPs) as follows:
  — Comments on the checklist and on the structure, relevance, and description of the items (25 items)
  — GPs study their practice management with the checklist and give comment (15 GPs)
  — All 40 GPs give opinion on completeness, structure, acceptability, and feasibility of the checklist.

Definition: Practice management concerns all aspects of the GP's tasks necessary to realize good operation of care, excluding clinical care or treatment of patients.

2. Development of the instrument
• Selection of indicators that are representative, discriminative, easy to measure, and undisputed
• Determination of the most reliable source of information per indicator (GP, assistant, patient, or observer)
• Design of a procedure for data collection and feedback

3. Pilot Study (59 GPs)
• Exclusion of indicators with little discrimination (<5% and >95%; e.g. otoscope = 100% = invalid)
• Factor analysis and construction of scales
• Inter-rater reliability for similar questions to both GP and assistant expressed as kappa.

The procedure for the practice visit method to assess practice management and required time

	Assessee	*Observer*
Before the visit		
• Introduction; setting of date and time	30 minutes	30 minutes
• The participant receives the procedure manual and completes the questionnaire	30 minutes	0 minutes
• Assistant hands out 15 patient questionnaires to patients waiting for consultation		
On the day of the visit (4–5 hours)		
• Arrival of the observer on the arranged date		
• The observer completes his observation of the practice and the medical records	0 minutes	120 minutes
• The observer completes the feedback report with the questionnaires and tally list	0 minutes	60 minutes
• The observer asks the GP to comment on the visit and the feedback report	60 minutes	60 minutes
• Both observer and GP complete an evaluation form	10 minutes	10 minutes
After completion of all observations in the practice or local GP group		
• Results of the participants are discussed with other participants or persons involved	120 minutes	120 minutes

Box 2. The development of the practice visit method (the VIP) in three stages and its procedure.

are presented in Box 2. The results of a pilot study among 59 GPs were used to adapt the method and the instruments.[12] Adjustments implied removing the insufficiently discriminating indicators (score of <5% or >95%) and indicators questioned more than once in the discussion with the GP groups after the visits. New indicators were selected on the basis of the evaluations, predominantly for 'workload' (indicators for estimated hours per week for various tasks) and 'job stress' (scores on five validated scales for job stress were used as indicators[27]). The revised method contained 249 indicators.

Evaluation of the practice visit method

GPs were then invited to participate in the evaluation of the practice visit method on a voluntary basis: they were recruited by advertising in medical journals, as well as from postgraduate training courses and by approaching representatives of local GP groups. GPs, assistants, patients and observers completed questionnaires and observation sheets before and during the practice visit (Box 2). The response category of the items was mostly 'yes' or 'no'; for some items the response category was 'number of minutes/hours per week'. For the items on job stress, a five-point Likert scale was used. Indicators were analysed either at practice level (Table 1) or at GP level (Table 2). The answer from the most senior full-time GP working in the practice was used for assessment at practice level.

Per chapter of the framework, Pearson's correlations between indicators were analysed (factor analysis, principle component analysis, and rotation). Beforehand, non-discriminating indicators were removed (score of <5% or >95%). We explored the factor structure and tried to interpret the various factors. A factor loading of >0.35 of an indicator was required to enter a scale or dimension. Reliability analysis was used to further select indicators for scale construction and to confirm the empirical framework (Table 3).

To determine the power of the assessment method in discriminating between GPs and practices, differences in practice management between various types of practices and GPs were studied: training practice or not,[28] single-handed practice or not, rural (<30 000 inhabitants) or urban practice, dispensing practice or not, and 'at least full-time assistance per full-time GP' or not.[29-31] Linear regression analysis was performed using these five binary explanatory variables as independent variables, with the score of each empirical dimension of practice management (with Cronbach's alpha >0.50) as the dependent variable. The scores for workload and the scores on the scales for job stress were used similarly as dependent variables (Table 3).

Results

Data for 110 GPs in 88 practices were available for analysis. For a number of characteristics, the study group was comparable to Dutch GPs in general (sex, year of establishment, member of Dutch College, percentage of private patients, characteristics of the assistant). However, there were fewer single-handed practices (44% versus 54% nationally) and rural practices were overrepresented (50% versus 11% nationally.)

Of the 249 indicators in the VIP, 21 insufficiently discriminating indicators were removed as well as 20 indicators that were questioned more than once in the discussion with the GP groups after the visits. The remaining 208 indicators were analysed at practice level (Table 1) and at GP level (Table 2). One hundred and eighty-seven indicators (those for workload and job stress were not included) were entered for the factor analysis, revealing 24 constructs or dimensions harbouring 158 indicators (84%); for 13 dimensions the Cronbach's alpha was >0.60 and for 21,

Table 1. One hundred and twenty-nine indicators for practice management (practice level; frequencies; n = 88), arranged per chapter of the framework (I to VI) and in dimensions (in bold).

Indicator	Frequency	Indicator	Frequency
I PREMISES AND EQUIPMENT		**Secretarial tasks delegated to the assistant**	
Equipment in treatment/examination room and lab		Assistant is responsible for handling the	
Presence of:		answering machine	76%
Finger splints	70%	Assistant fills out name/address/residence on forms	59%
Nasal ribbon gauze	69%	Assistant types referral letters	25%
Caustics to treat recurring epistaxis	58%	Assistant replenishes the doctor's bag	16%
Intravenous fluid and giving set	35%	Assistant assists the GP on-call at weekends	12%
Plaster of Paris	12%	Other indicators of delegation	
Microscopic test for blood in faeces	54%	Assistant decides if requests require a	
Urine culture set	46%	consultation or a home visit[a]	89%
Eyedrill	84%	Assistant tapes a sprained ankle[a]	15%
Tonometer	43%	Assistant takes a vaginal smear[a]	7%
IUD insertion kit	84%	Assistant writes accounts[a]	76%
Electrocautery equipment	71%	Assistant does the bookkeeping[a]	53%
Proctoscope	51%	Time reported by GP of consultation with	
Audiometer	48%	assistant[a]	29 minutes/week
Electrocardiograph	38%	Time reported by assistant of consultation	
Fluorescent pen light[a]	89%	with GP[a]	44 minutes/week
Sonic aid for detection of arterial occlusion[a]	40%		
		Collaboration with colleagues	
Hygiene		Structure of the GP group	
Presence in the examination room of:		Presence of a locum tenens contract	75%
Sanitary pad	81%	Arrangements for replacement in case of sick	
Disposable baby diaper	22%	leave of GP	89%
Bucket for used equipment	73%	Minutes are kept of GP group meetings	74%
Roller towel or disposable towels	37%	The agenda is mailed in advance to all	
Presence in treatment room of:		participating GPs	60%
'Sterile cloth with hole' for minor surgery	35%	The GPs take rotas for each other during holidays	91%
Routine for disinfection of table after a		Agenda includes discussion and decision making on:	
contaminating procedure	83%	Policy concerning medical issues	89%
Use of gloves when assistant cleans instruments	31%	Policy concerning certain categories of patients	60%
Use of indicator tape to check sterilization		Practice list size and definition of practice territory	69%
(by assistant)	23%	Policy concerning home care	39%
		Policy concerning CME	64%
II DELEGATION AND COLLABORATION		Policy concerning public relations	59%
Medical technical tasks delegated to the practice assistant		Policy concerning emergency care service	58%
Removing sutures (by assistant/practice assistant)	65%	Meetings between colleagues	
Liquid nitrogen application to warts	57%	(minutes/week)[a]	50 minutes
Ear syringing	53%		
Venepuncture	46%	**Collaboration with partners in primary care (minutes/week)**	
Examination and follow-up of cardiovascular patients	35%	Separate consultation with district nurses	7.5
Making an EKG	34%	Separate consultation with physiotherapists	12.0
Audiometry	33%	Separate consultation with social worker	5.2
Glueing small wounds	25%	Consultation with primary care workers in a	
Applying pressure gradient bandage on leg ulcer	22%	home team	10.0
		Consultation with pharmacist (pharmacotherapy	
Laboratory tasks delegated to the assistant		meetings)	7.5
Microscopic examination of urine sediment	82%		
Blood sugar testing	81%	**Collaboration with partners in secondary care/hospital**	
Test for microscopic blood loss in faeces	39%	GP can request gastroscopy without referral	86%
Counting leucocytes in blood	14%	GP can request tests for deep vein thrombosis	
		without referral	29%
Patient information on diseases given by the assistant		GP can request EKG-diagnosis without referral	30%
Assistant gives advice on common complaints		GP attends an oncology/necrology meeting at	
by telephone	93%	least once a year	60%
Assistant gives information on DM,		GP has regular informal contact with specialists	55%
asthma/COPD, CVD	41%	GP has regular contact with mental health service	
No. of patient information leaflets the assistant	median 2.4	institute	42%
hands out/week	(0–20)	Frequency of joint meetings with GPs and	
		specialists	3.4 per year
Medical organizational tasks delegated to the assistant			
Assistant provides referral cards for certain		**Collaboration with homes for elderly and other care providers**	
categories of patients	84%	Policy of institution on when to call the GP in	
Assistant summarizes correspondence on patients		emergencies	40%
in the records	80%	Policy of institution on when to call the GP for	
Assistant writes prescriptions for common		death certificates	44%
complaints requested by telephone	74%	Arrangements with homes for the elderly on	
Assistant has the task to invite at-risk patients		medication	35%
for checkup	39%		

Table 1. (cont). One hundred and twenty-nine indicators for practice management (practice level; frequencies; n = 88), arranged per chapter of the framework (I to VI) and in dimensions (in bold).

Indicator	Frequency	Indicator	Frequency
GP knows the special provisions for temporary care in institution when home care patient is ill or relatives want a break/holiday	83%	Patients indicated for 'flu vaccination are actively invited	64%
Arrangements with the service for addicted patients	38%	There is a list of patients with DM	55%
Collaboration with psychotherapists	44%	There is a recall system for patients who do not report for a preventive consultation	24%
Protocol/arrangements on euthanasia with people concerned	53%	There is a sex–age register	21%
Arrangements with ambulance	49%	There is a special surgery for DM patients	19%
Regular contacts with school(s)[a]	30%	There is a register of patients with increased cardiovascular risk	18%
III SERVICE AND ORGANIZATION		Practice identifies and surveys patients with increased cardiovascular risk	6%
Accessibility to patient		No. of preventive consultations in agenda in next three months[a]	5.7 ± 9.3
Waiting time before getting through to practice by telephone	4.6 ± 4.8 min	Other indicators of service and organization	
Patient approves of emergency service during office hours	93%	Patients can hear the conversation at the patient desk[a]	55%
Patient approves of the information on practice regulations	91%	Patients sometimes overhear a few snatches of conversation in consultation room[a]	9%
Patient approves of the on-call arrangements by the GP group	88%	Patients can dispose of a leaflet with practice information[a]	68%
Patient approves of the accessibility by telephone in emergencies	83%	Less than 1/3 of leaflets are provided by pharmaceutical companies[a]	52%
For small injuries, the patient prefers practice to emergency department in the hospital	72%	Patient library contains more than five books[a]	25%
		The practice has a system for hospital visits by GP[a]	80%
Organization of the surgeries/availability		Practice has an 'emergency telephone line' for patients[a]	58%
Patient can consult his own GP by telephone the same day if requested	94%	**IV RECORD KEEPING**	
Patient has a say in the duration of the consultation	78%	**Level of computerization of medical records**	
Patient wants a greater say in the organization of the practice	11%	Financial administration is computerized	87%
Patient reports being hindered by the assistant in contacting own GP	10%	Maintenance therapy is computerized	46%
Patient often gets a different GP during office hours	8%	Patient records are computerized	17%
Patient misses (the service of) a free-flow consultation[a]	22%	Problem list is computerized	18%
		V ORGANIZATION OF QUALITY IMPROVEMENT	
Organization of preventive activities		**Assessment on outcome and year report**	
There is a list of patients indicated for 'flu vaccination	92%	Presence of a year report	16%
The practice has a system for (re)calling patients indicated for a cervical smear test	90%	Assessment with the help of data of:	
		The sick fund	25%
		Prescriptions	33%
		Referral letters	10%
		Diagnostics	12%
		Other feedback data	10%

[a]Indicators that are not or weakly associated with dimension (Table 3).

>0.50. Together with the 10 dimensions for workload and job stress, 34 dimensions or scales could be distinguished in the VIP, structured in an empirically based taxonomy of practice management (Table 3). Twenty-nine of the 187 indicators did not fit well into the dimensions of the taxonomy; e.g. the indicator: 'the GP is often disturbed during the consultation by telephone', hardly correlated with any other indicator, as was the case for 'the practice has a leaflet with information on the practice', or 'the patient library contains more than five books'.

Table 3 also contains the differences in scores on the dimensions between groups of practices or GPs with different characteristics and the average score of the study group. Training practices scored significantly higher on five dimensions; single-handed practices and dispensing practices scored lower on tasks delegated to practice assistants, but higher on accessibility as well as on organization of the surgeries and availability. Practices having more practice assistants scored higher on hygiene, equipment, accessibility, organization of patient information, and organization of preventive activities. The indicators for workload and job stress also showed marked variation. GPs in training practices spent significantly more time on indirect care. Single-handed GPs reported

less job stress, yet experienced more inappropriate demands by patients, and GPs in rural practices spent less time on direct care but more on quality improvement and professional meetings.

Discussion

This is the first time that the validity of a visit method to assess practice management has been studied in detail.[26] The framework, defining the domain of practice management, permitted a balanced selection of relevant indicators for the practice visit method. The results from a test in a large number of practices confirmed this framework and selected dimensions of practice management to a large extent,[32-35] both proving to be in line with national[36] and international[37] classifications. It was possible to discriminate between specific groups of practices or GPs, which established the value of our method for quality assessment purposes. Dimensions of practice management proved to discriminate between (groups of) practices or GPs, showing differences to be expected on the basis of previous studies.[29,30,38-40] For example, single-handed GPs in the Netherlands have less equipment and delegate fewer tasks to assistants but score higher on

Table 2. Seventy-nine indicators for practice management of the GP (GP level; frequencies; n = 110), arranged per chapter of the framework (I to VI) and in dimensions (bold)

Indicator	Frequency	Indicator	Frequency
I PREMISES AND EQUIPMENT		**IV RECORD KEEPING**	
Use by GP of equipment, diagnostics and therapeutics		**Recording use of the SOAP-system**	
Use of or application by the GP:		Reason for encounter is mentioned in the record	
Bladder catheter insertion (more than once/year)	91%	(S = subjective)	78%
Peak flow meter	85%	Results of examinations and investigations	
Nasal forceps	82%	(O = objective)	76%
Disposable local anaesthetic eye drops	81%	Concise statement of the situation by GP	
Vibration tuning fork	72%	(A = analysis)	58%
Microscopic examination of skin snip for mycosis	67%	Plan/Action/Info is described in the record (P = plan)	81%
Microscopic examination of clue cell/trichomonas	62%		
Taping a sprained ankle (more than once/half-year)	57%	**Recording of prescriptions**	
Pressure gradient bandage on leg ulcer	52%	Strength of the medication indicated	80%
QI-meter (Quetelet Index)	51%	Dosage and administration indicated	71%
Stenopeic aperture	32%	Duration of the medication indicated	43%
20D magnifying glass for fundoscopy	25%	Actual medication of the patient retrievable	57%
		Basic data or list of problems/illnesses	
Content of the doctor's bag		Problem list is present	61%
Presence in the doctor's bag of:		Year of diagnosis of the disease is mentioned	61%
Diazepam rectiole	91%	Family history is noted	16%
B2-sympathicomimeticum in spray	83%	Basic data, summary of specialist's letters are noted	76%
Geudal airway	72%	Profession of the patient is noted	24%
Sticks for blood glucose (not expired)	67%		
Thermometer	65%	**Extent of use of records by GP**	
Urinary catheter	60%	Use of records when doing home visits	83%
Referral letters	54%	Use of records during patient consultation	
Sticks for urinary examination (not expired)	44%	by telephone	52%
Steristrips	36%	Use of records in repeat prescription	48%
Mucus extractor	26%		
Nasal ribbon gauze	23%	**V ORGANIZATION OF QUALITY IMPROVEMENT**	
Vial inventory[a]	32%	(see VI WORKLOAD: tertiary activities = time spent on QI)	
No. of vials (out of 10) in vial case[a]	9.5 ± 1.0 vials		
No. of vials not yet expired	8.2 ± 2.1 vials	**VI WORKLOAD AND JOB STRESS**	
		Workload of GPs working 90% or more in hrs/ week (n=76)	
II DELEGATION AND COLLABORATION		Consultations and telephone calls to patients	21.1 ± 6.6
Meetings with specialists[a]	19.0 minutes/week	Free-flow consultation hours	2.9 ± 3.6
Frequency of consultation of specialist		Home visits	9.0 ± 4.2
per month[a]	8.6 times/month	**Primary activities (based on appointment book) total[b] 33.0 ± 6.5**	
III SERVICE AND ORGANIZATION		Time spent on collaboration with other care providers (minutes)	
Waiting time before patient is called in surgery[a]	11.2±4.3 min	Consultation time together with colleagues	50 ± 27
Patient reports disturbances of the consultation		Total consultation time in primary care	54 ± 32
by telephone calls	37%	Consultation time with consultants/hospital	19 ± 12
		Consultation time with practice assistant	44 ± 38
Use of patient information on diseases by the GP		Documentation, record keeping and telephone	
Patient approves of the patient information on		calls	4.7 ± 2.8
diseases and complaints in the practice	76%	Financial administration	1.1 ± 1.4
Patient reports to have received an explanation		Hours on call	5.3 ± 2.1
with a demo during the consultation occasionally	33%	Total patient-related consultation time (hours)	2.8 ± 6.6
Patient reports occasionally receiving a leaflet		**Secondary activities total[b]**	**13.7 ± 3.9**
during the consultation	31%		
		Continuous Medical Education, QI	1.1 ± 0.9
Accessibility of patient information for GP or patient		Reading professional literature	1.2 ± 0.9
Leaflets are well stored and easily accessible	82%	Assessment and supervision/Balint	0.4 ± 0.3
Demo-model of the lumbar vertebral column is			
available	74%	**Tertiary activities (total CME, QI, reading, etc)**	**2.6 ± 1.3**
Demo-plate of the abdominal organs is available	73%	**Quaternary activities (professional meetings)**	**0.9 ± 0.8**
Leaflet with a diet for constipation is available	70%	**Total workload in the practice (core activities)**	**50.2 ± 8.0**
Leaflet on cardiovascular diseases is available	67%	Optional activities	3.0 ± 9.1
Leaflet on lower back pain is available	65%	Total workload in one week (all activities)	53.2 ± 10.1
Leaflet on acne is available	54%	Desired workload	49.4 ± 9.5
GP has read the leaflets he[a]	63%		
Frequency of GP handing out patient information		Job stress (n = 110)	
leaflets/week	4.2±3.5 times/week	Job satisfaction (pleasure, interest and	
		commitment)	7.9 ± 2.6
		Satisfied with available time	13.9 ± 3.3
		Costs versus benefits	7.9 ± 1.9
		Experienced workload	66.3 ± 8.8
		Experiencing inappropriate demands by patients	11.1 ± 2.8

[a]Indicators weakly associated with other indicators and dimensions; [b]Due to missing values the added totals do not agree with the calculated totals.

Table 3. Taxonomy of practice management; theoretical and empirical dimensions, internal consistency, and percentage of difference in score between groups of GPs/practices and the average score of 110 GPs in 88 practices. (Linear regression analysis, only significant findings are presented).

Theoretical aspects per chapter	Empirical dimensions and internal consistency (Cronbach's alpha)	Cronbach's alpha	Training practice %	Rural practice %	Single-handed practice %	Dispensing GP %	Assistance 100%
I PREMISES AND EQUIPMENT (45 indicators)							
1. Equipment and other materials	Equipment in treatment examin-ation room and laboratory	0.69			−18[a]		+12[a]
	Use by GP of equipment, diagnostics or therapeutics	0.62	+10[a]	+6[c]	−13[a]	NR	NR
2. Premises/hygiene/disinfection	Hygiene	0.56					−9[c]
3. Equipment out of office	Content of the doctor's bag	0.65		+7[c]		NR	NR
II DELEGATION AND COLLABORATION (57 indicators)							
4. Delegation of tasks to practice assistant	Medical technical tasks delegated to the assistant	0.74		−11[b]	−17[a]		
Intake	Laboratory tasks delegated to the assistant	0.60			−18[b]		
General care and diagnostic tasks	Assistant informing patients about diseases	0.53	+17[b]		−10[c]	−20[c]	
Organization and coordination	Medical organizational tasks delegated to the assistant	0.35	NR	NR	NR	NR	NR
Mutual adjustment	Secretarial tasks delegated to the assistant	0.39	NR	NR	NR	NR	NR
5. Collaboration with colleagues	Collaboration with colleagues (local GP group)	0.56				−21[a]	
6. Collaboration with partners in primary care	Collaboration with partners in primary care	0.56			−21[a]		
7. Collaboration with partners in secondary care/hospital	Collaboration with partners in secondary care/hospital	0.33		−12[b]			
8. Collaboration with homes for elderly and other care providers	Collaboration with homes for elderly and other care providers	0.58					
III SERVICE AND ORGANIZATION (30 indicators)							
9. Reception, accessibility	Accessibility	0.74		+3[a]	+2[c]		+3[a]
10. Availability/organization of services/continuity	Organization of the surgeries/availability	0.60			+7[b]	−10[b]	
11. Organization of information	GP use of patient information	0.55			−9[a]		
	Accessibility of patient information to GP or patients	0.64					+8[b]
12. Organization of preventive activities	Organization of preventive activities	0.61	+21[b]			−23[a]	+13[b]
IV RECORD KEEPING (20 indicators)							
13. Patient records (means and forms)	Recording using SOAP system	0.59				−8[b]	
Structure	Recording of prescriptions	0.80	+14[c]			−14[b]	
Usage	Basic data or lists of problems/illnesses	0.60				−9[a]	
Processing	Extent of use of records by GP	0.59					
	Level of computerization of medical records	0.67					
V ORGANIZATION OF QUALITY IMPROVEMENT (6 indicators)							
14. Assessment and evaluation	Assessment on outcome and year report	0.66					+11[b]

Table 3. (cont). Taxonomy of practice management; theoretical and empirical dimensions, internal consistency, and percentage of difference in score between groups of GPs/practices and the average score of 110 GPs in 88 practices. (Linear regression analysis, only significant findings are presented).

Theoretical aspects per chapter	Empirical dimensions and internal consistency (Cronbach's alpha)	Cronbach's alpha	Training practice %	Rural practice %	Single-handed practice %	Dispensing GP %	Assistance 100%
15. CME, reading and supervision/audit	CME, audit, reading (see below)	NA					
VI WORKLOAD AND JOB STRESS (21 indicators)							
16. Workload Primary to quaternary activities	Workload of direct care/week (contact with patients; primary activities)	NA		−6[b]		NR	
	Workload of indirect care/week (secondary activities)	NA	+18[a]			NR	
	Workload of QI/week (CME, audit, reading, tertiary activities)	NA		+12[b]		NR	
	Workload of professional meetings/week (quaternary activities)	NA		+22[b]		NR	
	Total workload of practice activities/week	NA				NR	−3[c]
17. Job stress (existing scales)	Job satisfaction; pleasure, interest, and commitment	0.72			−6[c]	NR	
	Satisfied with available time for practice management	0.76				NR	
	Investment minus reward/cost benefit	0.74			−5[b]	NR	
	Experienced workload	0.93				NR	
	Inappropriate demands by patients	0.67			+5[c]	NR	

[a]P<0.01; [b]P<0.05; [c]P<0.1; NR = not in regression mode; NA = not applicable.

accessibility and availability. Training practices serve as a model and score higher on the use of equipment, delegation of medical tasks, and in organization of preventive activities. The list of indicators is an inventory of aspects, which can be improved in a substantial number of practices.

A low-profile observer served as a mirror, gathering only factual information for the feedback report and leaving little room for judgement or approval, resulting in a good inter-rater reliability of the VIP. Test-retest procedures were done for all observations, including special test-retests for patient record observations. Comparable results (Cohen's Kappa >0.60) were found between different GP observers, and between GP observers and non-physician observers. Also, inter-rater reliability between the researcher (acting as a 'gold standard') and observers was determined (Cohen's Kappa >0.60 and <0.80). It contributed to the nearly unanimous acceptance among participants and to a positive opinion on the feasibility (costs, time required) of the visit method. Costs are about £200 per visit; 90% of the GPs were reported to want a follow-up within two to five years.

Nevertheless, some critical remarks on the approach and results may be made. First, even a careful selection of indicators from a framework, laboriously constructed in a consensus procedure, does not completely guarantee good validity. A checklist with 2410 elements may seem a rich thesaurus, yet useful and significant indicators were hard to select. Many of the 2410 elements would probably be met by all GPs and practices anyway and, if not, often lacked sufficient support by the profession in terms of clear guidelines for practice management.

Secondly, it is debatable whether the starting point for the development of a valid method (derived from the educational field) is applicable to practice management. We assumed that, if

our framework and theoretical dimensions were based on valid assumptions, the theoretical dimensions would be confirmed in the factor analysis and would be equally distributed over the framework and its chapters. The dimensions were confirmed in the VIP, but the internal consistency of most dimensions expressed as Cronbach's alpha was not high. Creating dimensions was not, however, the prime objective: all the focus was on selecting relevant, independent, and mutually exclusive indicators that were indicative of an exclusive aspect of practice management. A well-equipped practice is, for example, likely to have an audiometer, an eyedrill as well as a proctoscope, yet these indicators have a singular meaning and the presence of each depends on many factors. Therefore, in our approach, one would not expect the dimensions to be highly internally consistent, but they would be consistent enough to permit data reduction and scale construction, resulting in a meaningful picture of practice management which can be more easily surveyed.

The 29 indicators not fitting into dimensions are also part of a careful proportional selection of the domain, and are therefore an essential part of the content of the practice visit method. The single indicator 'the GP is often disturbed during consultation by telephone', for example, is important because it probably indicates a distinct characteristic of a GP (or a GP's organization) permitting these disturbances.

It could be argued that we assessed only a limited number of aspects essential for quality of care. This widely held point of view implies that a valid test for quality of care should look for missing essentials. In a study of practice visits in Australia[15] to assess practices on how well they met the entry standards, 55% met all standards and 80% met all but one or two criteria, leaving little or no room for improvement and focusing on 'bad

apples'.[41,42] Our choice for a formative method gave priority to the attainable, assuming that substandard aspects would reveal themselves in the process: it is the theory of 'shifting the bell curve to the right instead of cutting its tails'. Our method is unfit for selective purposes (re-certification, acceptance for trainership, becoming a fellow of the College); the method and its questions are based on honest answers to get a true picture of one's own practice management. This sets it apart from tests for knowledge and clinical or consultation skills that would otherwise leave the participant uncertain of the correct answer and would allow inadvertant outperformance.

Conclusion

The practice visit method to assess structural aspects of general practice is, in our opinion, an important step forward towards the introduction of systematic quality improvement in the profession. However, further work needs to be done in selecting and balancing indicators.

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