

The development of quality circles/peer review groups as a method of quality improvement in Europe.

Results of a survey in 26 European countries

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Background. Peer review groups (PRGs) and quality circles (QCs) commenced in The Netherlands and have grown to become an important method of quality improvement in primary care in several other European countries.

Objective. Our aim was to provide an overview of QC/PRG activities and exemplary programmes in European countries.

Methods. A survey was performed in three consecutive steps by EQuIP (European Working Party on Quality in Family Practice), which is a representative association of experts from 26 European countries. The national representatives initially completed a structured questionnaire documenting the number and objectives of QCs/PRGs, sources of support and special programmes in their countries (step 1). In step 2, these sources were used to extend and validate the expert statements. Step 3 studied paradigmatic initiatives in depth.

Results. Step 1 took place in 2000; the response rate was 100% (26 countries). QCs/PRGs were very active in 10 countries; 16 countries showed little or no activity. Participation ranged from <2 to 86% of all GPs. Step 2 concentrated upon the countries with a high level of activity. Development appeared to be associated with establishment in private practice and the portion of GPs with vocational training. Eight programmes from six countries describing the establishment and the targeting of QC/PRG work are presented as case reports (step 3).

Conclusion. In the last 10 years, substantial development of QCs/PRGs has taken place in The Netherlands, the UK, Denmark, Belgium, Ireland, Sweden, Norway, Germany, Switzerland and Austria. Further evaluation is needed to clarify the impact on quality of care.

Keywords. Europe, health care, peer review, medical audit, quality assurance, quality circles.

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Introduction

Commencing in The Netherlands (1979) and in other European countries in the 1980s and early 1990s, peer review groups (PRGs) and quality circles (QCs) have become an important method of quality improvement (QI) in primary care and have expanded into numerous other European countries. Peer review has been widely accepted as suitable for QI in medical practice,¹ because it encourages professional autonomy and supports critical insight and appraisal of quality of care. Influential articles and textbooks^{1,2} as well as networking organizations (EQuIP) have outlined experience with quality improvement by peer review of GPs. GPs are now

participating in QCs/PRGs in many European countries.

QCs/PRGs may be described as small groups of physicians (or interdisciplinary groups with other health professionals), based on voluntary participation and concerned with activities aimed at assessing and continuously improving the quality of patient care. The methods involve more than traditional CME (continuing medical education) or professional self-awareness (e.g. Balint groups).

EQuIP conducted two surveys in Europe^{3,4} which provided qualitative data on different aspects of QI based on expert opinion. As a comprehensive overview of peer review activity was not available, EQuIP decided to initiate a new survey on the state of QC/PRG work in Europe in 1999. The Quality Improvement Research Unit in the Department of General Practice, Hannover Medical School (Germany) was assigned to complete this study. The survey had two aims: to give a comprehensive overview of the development of QCs/PRGs in Europe and to provide as much detailed, quantitative and qualitative information on different features of peer review work as possible. The results can be used to exchange experience between European countries, to learn from each other and to enable countries to work together on suitable peer review projects.

Methods

QCs/PRGs were defined as:

- continuing peer groups of GPs (or interdisciplinary) that meet on a regular basis,
- and aim at assessment and improvement of quality of care in different ways, e.g. by audit, guideline setting or adaptation, critically discussing personal medical practice, making plans for change,
- and which are autonomous (not mandatory as a form of external quality control).

Groups which only perform 'traditional' CME or Balint groups are not included. Although CME is also an important concern in PRG/QCs (depending on specific requirements in different countries), this concern has to be distinguished in scope and method from traditional forms of CME (e.g. lack of patient and practice orientation, no confrontation of new information or recommendations with own daily practice, insufficient consideration of implementation).

Considering the different stages of development in the 26 European countries represented in EQuIP, a three-step design survey was adopted to obtain basic data using a standardized form for all participating countries (step 1), to retrieve published or unpublished documents and contact national resource persons (step 2), and to identify and describe exemplary projects from different countries (step 3).

During step 1, a standardized questionnaire was developed and sent to the national representatives of all 26 countries in EQuIP. The questionnaire consisted of 12 questions, concerning:

- number of GPs and of QCs/PRGs (exact or estimated), and involvement/participation rate of GPs (four questions),
- main objective/aim of QCs/PRGs (one question),
- names of institutions, which support, supervise, train, facilitate or evaluate QCs/PRGs (five questions),
- reference to documents or experts for further information (two questions).

Simultaneously, a literature search was performed which included the database MedLine and the internal database of the Research Unit, a hand search of international journals on QI and general practice, and a careful analysis of EQuIP conference reports (since 1991). The search was complemented by the identification of Internet sites of relevant organizations.

National experts were then contacted (step 2), and asked to validate quantitative data, resolve unclear findings and identify further sources of information. A cut-off point of a 10% participation rate of the GPs in a country was fixed to distinguish between countries with high QC/PRG activity which required further investigation, and others with low or no activity.

Several characteristics of general practice which might favour the development of QCs/PRGs were identified in the survey and validated by additional questions to national experts and written materials.⁵ Possible factors included employment conditions of GPs (employed/self-employed), the type of remuneration (salary, capitation fee, fee for service), predominant practice organization (single/group practice, health centre), the gate-keeping role of GPs, the existence of a practice list and the proportion of vocationally trained GPs in primary care. The chi-square test was used to determine the significance of an association of these (dichotomous or trichotomous) variables with the subsequent assignment of a country to group I or II.

After analysing the available information, eight projects from six countries were identified as of particular importance. The EQuIP national representatives of these countries were then asked to contribute a short, structured report (step 3).

Results

The questionnaire was circulated by E-mail early in 2000 to the 26 national representatives in EQuIP; this first step yielded a response rate of 100%. During the process, 35 additional experts were identified and contacted later in 2000, with a response rate of 50%. Documents relevant for quality improvement/peer review work were collected from 18 of the 26 countries.

Participating countries, number of QCs, percentage of GPs in QCs/PRGs, estimates of the overall importance of peer review work and main objectives are displayed in Table 1.

The number of QCs/PRGs and the rate of participation were used to distinguish between countries with high activity (group I) and countries with little or no activity (group II). According to our criteria, Greece, Finland and Israel were assigned to the countries with low activity, because only a small number of PRGs are active, and GPs form a minority of primary care physicians (implying that not more than ~100 GPs are involved in QCs/PRGs). An exception was made in assigning Austria as a country of high activity, lowering our cut-off point of participation to 9%, due to the large number of groups and participating GPs (110 groups, estimated ~1000 GPs involved).

Audit activities in Great Britain are not performed in continuous small groups, but are primarily practice based and problem oriented in teams. Despite our definition of QCs/PRGs, we regarded participation in audit groups as equal to QC/PRG work because of their similarity of method and aim.⁶ In Spain, respondents

were not unanimous about the existence of PRGs. It was finally stated that an extensive programme to train GPs in quality improvement exists, but no groups were working continuously following the principles of peer review.

Participation rates of GPs in the 10 countries with high activity varied between 9 and 86%. In eight countries, lower activity was reported, and in the remaining eight countries no activity could be seen. Data on participation were based on exact numbers where they were available for a given country, otherwise they were based on estimates of the national key persons.

The main objectives of QC/PRG work involved CME in 21 countries, quality management and guideline implementation or adaptation in 13 countries, audit activities in 11 countries, and other aims (e.g. practice visits, reaccreditation) in seven countries.

Different organizations (governmental, professional, scientific) were named as supporting, supervising and facilitating QCs/PRGs. In 18 of the 26 countries, professional organizations were named as the primary source of support. This includes countries where programmes to establish QCs/PRGs are only at the planning stage. University departments or institutes were mentioned in

TABLE 1 Number of QCs/PRGs, percentage of participation and main objective/methods

Country	No. of QCs/PRGs in general practice	Percentage of GPs in QC/PRG	Main objective/method of PRGs
Countries with high activity in the field of QI by peer review			
Austria	110	9	C A Q G O
Belgium	602 ^a	75–80 ^a	C A G O
Denmark	275 ^a	85 ^a	C A Q G
Germany	700	20	C Q O
Ireland	120	60	C A Q
The Netherlands	800	78.3 ^a	C Q G O
Norway	40–60	25	C A G
Sweden	200	40	C A
Switzerland	400	20–30	C A Q G
UK	x	86 ^a	C A Q
Countries with little/no activity in the field of QI by peer review			
Croatia	8 ^a	5 ^a	C Q G
Czech Republic	10	1–2	C Q G O
Estonia	–	–	–
Finland	5–10	10	C G O
France	–	–	–
Greece	4 ^a	10–15	C G O
Hungary	–	–	–
Iceland	–	–	–
Israel	x	30	C
Italy	–	–	–
Lithuania	–	–	–
Malta	–	–	–
Poland	4–5	3	C Q
Portugal	–	–	–
Slovenia	2 ^a	2 ^a	G
Spain	–	–	C A Q G ^b

^a Exact, other values are estimated.

^b See text.

– = no activity; x = missing data.

Main concern/method: C = CME; A = clinical audit; Q = QM/QI; G = guidelines; O = other.

11 countries, and governmental or public institutions in six countries. In all group I countries, the professional organizations of physicians and GPs are involved in functions of support, training and supervision.

Practice organization, ratio of single-handed practices, status of GPs, function as a gate-keeper and portion of professionally trained GPs in primary care were tested as factors influencing the activity of QCs/PRGs (Table 2).

The predominance of vocationally trained GPs in primary care had the highest predictive value for the development of QC/PRG activity in a country. Other factors were less important, but most were interrelated (e.g. occupational status, remuneration and practice organization).

Discussion of the quantitative findings

Up to now, work in QCs or PRGs has been one of the most widespread methods of achieving quality improvement in general practice. Our survey showed substantial activities in 10 of the 26 European countries represented in the network organization EQuIP. Results of the last survey,⁴ reflecting the 'state of the art' in 1995, revealed QCs/PRGs as 'widely used' in three European countries (The Netherlands, the UK and Ireland) and 'occasionally used' in 12 of 21 European countries. Since then, development has clearly accelerated in seven other countries: Denmark, Belgium, Sweden, Norway, Germany, Switzerland and Austria.

Our definition of QCs/PRGs had to apply to different national conditions and projects, but excluded 'traditional' approaches of CME, which can be defined as the confrontation with 'pure' scientific or clinical knowledge, the neglect of patient orientation, daily practice conditions and specifics of individual cases. The importance of this type of CME may be recognized, but it is well known that it is not sufficient to affect quality of care substantially.^{7,8}

The interpretation of the national key persons in step 1 of the survey might be subjective, but obtaining additional answers in step 2 should help to ensure that the initiatives

were identified adequately. We had to rely upon estimations of experts in the quantitative data for many countries, where registration systems or published figures were missing. However, we tried to validate these estimates by judgements of additional experts, particularly if the estimates looked implausible. In some countries, e.g. in Spain, multiple contacts were necessary to clarify uncertain estimates. Surprisingly, it was not possible to identify any peer review work in two large European countries: France and Italy.

The Central and Eastern European countries with health care systems in transition are under-represented in this study. However, we found plans for QI in Poland, the Czech Republic, Hungary, Estonia and Lithuania for example (possibly as a result of EQuIP activities).

The rapid growth of QCs/PRGs in some countries (with participation rates of 9–85% of the GPs) does not necessarily imply a direct impact on the quality of care. Evaluation of the impact of small group work, audit and models of quality management in general practice reveal ambiguous effects,^{9,10} and clear-cut, multifaceted approaches to QI are needed. We identified very few evaluation studies for specific approaches to QC/PRG work. On the other hand, an important effect of peer review work on professional development in general practice (and vice versa) in countries with extremely high participation in peer review work can be illustrated, e.g. by case studies (see below) from The Netherlands and Denmark.

A common theme in peer review work appears to be development through the principles of professional autonomy and voluntary participation. In many countries, the spread of QCs/PRGs took place spontaneously as a result of initiatives of interested GPs. Virtually no programmes were based on coercion, but in some countries participation became a type of professional obligation, partially in association with schemes of reaccreditation.

To explain the differing developmental stages of QC/PRG work in different countries, we could only perform a preliminary data analysis, due to the small number of very different systems of general practice and limits of our data to identify favourable or beneficial factors of QC development. Typically, GPs in private practice, but with a stable position as a family doctor (gate-keeper function, practice list) and with a strong professional identity, will work in QCs/PRGs. QC development appears weak in systems where trained GPs are employed, and form a minority of primary health care professionals.

Peer review work aimed at improving quality of care overlaps with professional development in general practice. A prominent example of this comes from The Netherlands, where efforts to develop PRGs in combination with a programme to implement guidelines for general practice resulted in an increased membership of their professional organizations, stabilization of their role as the resource for first-line medical care and (possibly) an improvement in quality.

TABLE 2 Association of different variables with activity of QCs/PRGs

	Chi-square test
Practice organization (amb. practice/health centre)	$P = 0.04$
Predominance of single-handed practice	$P = 0.14$
Status of GP (independent, mixed employed)	$P = 0.23$
Gate-keeping	$P = 0.79$
Professionally trained GPs predominating ^a	$P < 0.0005$

^a Estimated >50% of the primary care physicians with vocational training.

Systems of remuneration could not be tested, because systems are mixed in many countries.

Eight exemplary programmes in six European countries (case reports)

Data from the first two steps of the EQuIP survey about 'the state of the art' in QC/PRG work in Europe were intended to give a comprehensive and quantitative overview.

We took the 'qualitative road' in the third stage of the survey, taking into account that different conditions and aims led to some examples of successful peer review work, which may be transferable on the basis of their method of quality improvement.

Eight programmes in six European countries emphasizing different targets, which are well documented and mostly published, were identified by the authors in co-operation with the EQuIP delegates as of particular importance.

These 'best practice' programmes are presented in short case reports (Boxes 1–8), which were contributed by their initiators or principal researchers. The programmes are compared with regard to aim, method, level of action, ownership/sources of support and results. Four programmes aim primarily at establishment of QC/PRG work; four others focus on targeting QC/PRGs to strategies of quality improvement.

Establishment of quality circles and implementation of peer review

We selected four case studies of particularly successful programmes to establish and implement QCs/PRGs, thus presenting different strategies, which are appropriate in specific circumstances. The Dutch have been involved from the very beginning of peer review work in general practice (Box 1).

It is essential that PRGs are led by doctors ('peers') themselves, not by external persons. Moderators of QCs/PRGs must be qualified to communicate and be

familiar with techniques of quality improvement, thus identifying, documenting and evaluating problems in quality of daily practice. In many countries, it was important to empower GPs to become moderators using special training (Box 2).

Particular problems with quality improvement and QC/PRG work have been identified in Central and Eastern Europe, with health care systems in transition and often only early steps in establishing specific general practice/family medicine in primary care (Box 3).

The organization of a network of small group work in Ireland was particularly successful, coinciding with the establishment of professional development in general practice (Box 4). The scope of these groups reaches far beyond traditional CME and aims for QI in general practice.

Profiling peer review work for specific purposes in quality improvement in general practice

As QC/PRG work is not an end in itself, we selected four exemplary programmes to show how to practise and target peer review work and to integrate it into more comprehensive approaches to QI.

A very feasible and therefore important method of QI was developed in Denmark, and has spread throughout Scandinavia (Box 5). As with the approach in Ireland, CME was fostered intentionally within the quality cycle.

Of particular interest in Belgium is a project to facilitate and implement interdisciplinary home care teams (Box 6). GPs work within a system where patients have virtually open access to different providers of medical care. Thus GPs are in a very difficult position with regard to co-ordination and supervision of the process of residential care.

As highlighted in the Danish example, a database derived only from documentation of one's own practice is

Box 1 *PRGs on a local level and the role of guideline adoption (The Netherlands)*

General aim. To improve quality in general practice by using methods of peer review in local groups.

History. A first experiment in The Netherlands with 234 GPs in the district of Nijmegen University was carried out in the period between 1979 and 1984/85. Twenty-two local groups of GPs met about eight times a year for ~1.5 h to take part in a structured QC procedure (attendance rate 80%). Data on physician performance were collected beforehand and critically discussed with colleagues.

Methods. Self-recording of medical performance, comparing the data with locally developed guidelines and protocols; audiotaping consultations and receiving feedback from peers who used criteria for doctor–patient communication; mutual practice visits particularly addressing practice management.

Support. Initially by the university department of Nijmegen, later adopted by the Dutch College of General Practice (NHG).

Results. This peer review method was evaluated very positively; most GPs quickly abandoned their initial reservations and fears. They experienced change in performance and attributed these changes to, in particular, the exchange of practice experiences with colleagues, awareness of gaps in performance and learning about guidelines, protocols and criteria for optimal patient care. A controlled study that involved 43 of the participants showed changes in history taking, communication with patients, follow-up decisions and drug prescribing.

Wider dissemination of the approach was tried by providing specific training on supervising PRGs to local and regional key persons. However, widespread use was only seen in the 1990s, when peer review work was supported by the Dutch College of GPs with national (evidence-based) guidelines and specific educational packages. Much emphasis was given to collaboration within local GP groups. It is estimated that between 60 and 80% of all GPs in The Netherlands are regularly involved in local peer review activities now, but the quality of these activities probably varies a lot. The influence of the Dutch experience on QI in other European countries has been considerable.

References 1,11,12

Box 2 *A training programme for QC moderators (Germany)*

General aim. To enable GPs to establish QCs and to lead small group work on improvement of quality in general practice.

History. First QCs of GPs in Germany were founded in 1991/92, initiated by researchers of the university departments in Göttingen and Hannover. Expectations, needs and abilities of participants were carefully evaluated in these experimental groups. In 1993, a programme to train moderators was developed.

Methods. In 2-day courses, GPs are trained to lead small group work. Techniques of problem finding, communication in groups and conflict settlement are presented. The participants learn to document and evaluate quality of care with documentation sheets and videotapes. Training materials and a handbook of instruction have been developed.

Support. Courses are organized by the AQUA-Institute for Applied Quality Improvement and Research in Health Care, Göttingen, and funded by regional associations of sickness fund physicians (ASHIPs).

Results. Approximately 1100 physicians across all medical specialities in ambulatory care have been trained (and ~1500 other physicians by other providers). An estimated 2500 QCs in different medical specialities have been established in Germany¹³. Experience has shown that training in communication skills and QI techniques is of particular importance for GPs to tackle problems of quality in daily care.

References 14,15

Box 3 *Implementing QCs by tutor training (Poland)*

General aim. To find and train tutors for PRGs among family doctors in Poland. To enable them to create PRGs, to prepare programmes of QI and to implement the programme in practice.

History. Assisted by international organizations of GPs, the Polish College of Family Doctors analysed QI activities and found PRGs to be most suitable.

Methods. Establishment of a School of Tutors, recruitment of family physicians to act as tutors, education in leadership and team building, QI by small group working and evidence-based medicine.

Support. Polish College of Family Doctors.

Result. Recruitment at the regional level involved a psychological questionnaire assessing the personality of candidates and their skills as a leader. One hundred family doctors were selected and divided into groups of 33–35 participants.

In April/May 2000, the first module entitled 'Leadership' commenced. Participants were trained in team building and group work, and subsequently asked to create a PRG in their professional environment.

The second module ('Quality assurance and quality tools for group working') included group consensus, decision matrix; quality cycle; guideline preparation; Delphi method and construction of the QI plan. Participants were asked to prepare a prevention programme, containing information about the health needs of their region, means of implementation and outcome evaluation.

The third module was 'Evidence-based medicine'. All training sessions were interactive.

The course was completed in December 2000 with a final conference where successful participants were designated as tutors.

Box 4 *CME groups with an emphasis on quality improvement (Ireland)*

General aim. To meet the educational needs of Irish GPs in order to improve the quality of care they provide to their patients.

History. Commenced in 1984, initiated by the Irish College of General Practitioners (ICGP; founded in the same year).

Methods. CME in small groups involved in peer review, guideline implementation and audit, led by CME tutors. These tutors are trained local GPs, who are paid the equivalent of two sessions per week to allow them protected time for their activities.

Support. ICGP, financial support through governmental funds overseen by the College.

Result. A total of 120 small groups are distributed throughout the country with an average of 10 members, meeting monthly at a local venue. The ICGP has produced a manual on small group facilitation and organization. Tutors attend three workshops per year to maintain and improve their skills. Ninety percent of Irish GPs are members of the ICGP, and 60% attend CME small groups regularly. Improvement in skills and knowledge, e.g. treatment protocols, are agreed. The supportive environment is conducive to mutual support. Inter-referral between GPs is encouraged, e.g. minor surgery, family planning. CME tutors have an official ICGP visit every 3 years to evaluate all aspects of their work. A qualitative study ('Does small group CME make a difference') has been completed. Preliminary results suggest that participants have made changes in their clinical practice.

Reference 16

Box 5 *The APO method in QCs. Prospective audit as a simple tool for quality development in primary health care (Denmark)*

General aim. To develop and carry out quality development projects for primary health care staff based on a simple prospective practice activity analysis combined with different CME activities.

History. Audit Project Odense (APO) was established in 1989 at the Department of General Practice in Odense with financial support from the GPs' organization (PLO) and the Danish College of GPs (DSAM). From then, audit activity spread all over Denmark and the other Scandinavian countries.

Methods. APO is an integrated quality development method which follows the audit cycle, suitable for elucidating frequently occurring topics in the primary health care sector. An audit includes:

- (1) Prospective registration on a specially developed chart suitable for collection of data to study own practice.
- (2) Follow-up activities including analysis of the registration result, identification of quality problems and subsequent training courses.
- (3) Final registration and evaluation 1–2 years after the first registration in order to see whether the project target has been achieved.

As familiarity with the method increased, it was developed further to enhance the power to implement change. Tailored intensive CME activity has been integrated, and at a further stage APO registrations are combined with other data sources such as administrative registers. Patient views will be considered via a questionnaire.

Support. APO is owned by the Research Foundation, received grants from a pharmaceutical company and has managed to yield its own regular income.

Result. The project is well established in Denmark and is now a resource centre for quality development and postgraduate training in general practice. It is also relevant for other personnel groups in the primary health care sector. In addition, APO has been involved in the development and implementation of clinical guidelines. Audit work is widespread in all counties in Denmark through a network of specially trained audit supervisors. Similarly, independent audit projects have been established in all Nordic countries. Examples of common issues are:

- (i) An audit on common infections, demonstrating a significant reduction in the number of antibiotic prescriptions and a significant change towards prescribing more narrow-spectrum antibiotics.
- (ii) Audits on allergy, which resulted in a national guideline.
- (iii) Audits on musculoskeletal diseases, (X-ray diagnostics, use of NSAIDs).
- (iv) Implementation of clinical guidelines on prevention of ischaemic heart disease (by DSAM).

More than two-thirds of all Danish GPs have participated in an audit project. The APO method is developing in the direction of combining self-registration with a multifaceted intervention strategy of change.

References 17–19

Box 6 *PRGs to improve the quality of home care teams (Belgium)*

General aim. To inform GPs about the structure of home care teams, and facilitate interest in co-operation with all team members. To provide information on QI terminology and philosophy.

History. Establishment of PRGs started in 1995 supported by the Scientific Society of Flemish GPs (WVVH). After the establishment of a legal framework on the support of home care teams, piloting of the programme took place in 1999; implementation commenced in 2000.

Methods. Combined with general training in QI, the PRGs are encouraged to co-operate with other professionals in residential care, build teams, and plan, co-ordinate and oversee home care. Case discussion and utilization of expert information (by local co-ordinators of home care teams) is employed.

Support. The WVVH, with a grant from a pharmaceutical company.

Result. The programme is used on a small scale in PRGs and in vocational training. We expect that the programme will gain importance as more regional managerial support is established.

Reference 20

not sufficient for developing strategies of QI in integrated situations of care. The German project outlined in Box 7 shows how peer review work can be conceived as a module of quality improvement, and can be facilitated by the provision of data (on prescriptions) resulting from analysis of routine reporting.

The German programme requires facilitation and external expertise. However, the usefulness of informed (data-based) peer review is important, particularly with respect to functionally specified health services.

The field of specialized diagnostics is particularly important. Another Dutch example shows how to carry out diagnostic peer review in a cost-effective manner (Box 8).

Conclusion

This survey provides the first comprehensive overview of the development of peer review work and QCs in

Box 7 *QCs on pharmacotherapy (Germany)*

General aim. To facilitate rational prescribing, make prescribing routines in daily practice more transparent, and enable doctors to change their prescribing habits.

History. Starting in 1996, a specific programme to tackle problems of rational prescription for common conditions was developed. The programme was piloted in one region with notoriously high-prescribing GPs and then propagated into two other regions in Germany as well as into numerous networks of ambulatory care.

Methods. GPs were trained as moderators and asked to recruit participants for QC work. The emerging QCs met about 10 times in a monthly interval following a curriculum of defined indications for prescription. Participants were provided with (i) data in each session about their prescribing to date (baseline compared with the mean of the group and with a control group without intervention); and (ii) advice on evidence-based recommendations for the given disease. Six months later, a follow-up meeting took place where the participants received similar data from the quarterly period following the intervention.

Data processing is very expensive in order to match information from different providers (sickness funds, data pools of pharmacies, etc.) and due to different coding schemes.

Support. Sickness funds, regional provider organizations (ASHIPs).

Results. The programme was successful (~30–70% of all GPs participated) in two German regions (Hesse and Saxony-Anhalt), and it was implemented in various networks of physicians as a module of QI. Total participation was ~800 GPs (in 2001). As Saxony-Anhalt is one of the new federal regions, physicians based there considered the programme as a particularly useful device with regard to the pharmaceutical market. Evaluation indicated that 5–15% of prescription costs could be reduced compared with a common trend of increase, while the appropriateness of prescription (for conditions such as hypertension or asthma) increased. Recently, the series of sessions was enhanced with one session on the evaluation of prescriptions for a typical chronic disease [chronic obstructive pulmonary disease (COPD)] and one about drug risks for elderly people. Within ambulatory care networks, the programme has been extended to other expensive items such as hospital admission or physiotherapy.

References 21,22

Box 8 *Diagnostic peer review (The Netherlands)*

General aim. To get feedback on and reduce uncertainty about external test ordering.

History. Within a well-established system of peer review work in The Netherlands, in 1995/96, experimental approaches to deal with laboratory test ordering began. A systematic approach was started in the following years.

Methods. GPs receive written, graphical feedback on a set of tests related to important clinical problems, compared with their colleagues; next they have a QC meeting of 1.5 h in their local PRG; the meeting is structured and includes discussion of the feedback with a colleague, introduction of clinical guidelines and making individual and group plans for change. During follow-up meetings, progress in changing test ordering routines is checked.

Support. Dutch College of General Practitioners.

Result. The experiment with 20 groups and ~200 GPs showed that the QC method was received very well by the participants. The combination of feedback and interactive learning was evaluated very positively, as well as the focus on important clinical problems. First results of a randomized controlled trial on effectiveness showed a significant reduction in tests ordered in the intervention group after 1 year (i.e. three PRG meetings).

References 1,12,23,24

Europe. Substantial development was found in 10 countries. Aims and concepts of QCs/PRGs vary among the different countries. Patterns of professional development of general practice promote this development and are themselves supported by the development of QCs/PRGs. Other research findings, e.g. from The Netherlands and Germany, show that this development is ongoing.

Once the early period of establishing a large number of QCs/PRGs is accomplished, peer review work changes to a method of professional supervision, of practice-oriented education and evaluation, and should be integrated into more comprehensive approaches to improve quality of care. The series of eight case reports from six

countries presented some attractive examples to strengthen efforts of quality improvement.

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References

- ¹ Grol R, Lawrence M. *Quality Improvement by Peer Review*. Oxford General Practice Series, 32. Oxford: Oxford University Press; 1995.
- ² *Peer Review in General Practice*. Methods, standards, protocols. Nijmegen: Nijmegen University, Department of General Practice; 1988.
- ³ Grol R, Jacobs A, Baker R. Quality assurance in general practice, the state of the art in Europe. *Fam Pract* 1994; **11**: 460–467.
- ⁴ Grol R, Baker R, Booth B. Systems for quality improvement in general practice. A survey of 26 countries. *Eur J Gen Pract* 1997; **3**: 65–68.
- ⁵ European Union of General Practitioners (UEMO). *UEMO Reference Book 2000/2001*. KPL Group; 2000.
- ⁶ Lawrence M, Schofield T, eds. *Medical Audit in Primary Health Care*. Oxford: Oxford University Press; 1993.
- ⁷ Davis DA, Thomson MA, Oxman AD, Haynes RB. Evidence for the effectiveness of CME. A review of 50 randomized controlled trials. *J Am Med Assoc* 1992; **268**: 1111–1117.
- ⁸ Davis DA, Thomson MA, Oxman AD, Haynes RB. Changing physician performance. A systematic review of the effect of continuing medical education strategies. *J Am Med Assoc* 1995; **274**: 700–705.
- ⁹ Johnston G, Crombie IK, Davies HTO, Alder EM, Millard A. Reviewing audit: barriers and facilitating factors for effective clinical audit. *Qual Health Care* 2000; **9**: 23–36.
- ¹⁰ Grol R. Between evidence-based practice and total quality management: the implementation of cost-effective care. *Int J Qual Health Care* 2000; **12**: 297–304.
- ¹¹ Grol R. Peer review in primary care. *Qual Assur Health Care* 1990; **2**: 119–126.
- ¹² Grol R. Quality improvement by peer review in primary care. A practical guide. *Qual Health Care* 1994; **3P**: 147–152.
- ¹³ Gerlach FM, Beyer M, Römer A. Quality circles in ambulatory care: state of development and future perspective in Germany. *Int J Qual Health Care* 1998; **10**: 35–42.
- ¹⁴ Bahrs O, Gerlach F, Szecsenyi J, Andres E. *Ärztliche Qualitätszirkel; Leitfaden für den Arzt in Praxis und Klinik*, 4th edn. Köln: Deutscher Ärzte-Verlag; 2001.
- ¹⁵ Szecsenyi J, Andres E, Bahrs O, Gerlach FM, Weiss-Plumeyer M. [Evaluation at a training program for moderators for practice based quality circles: a interim result] [in German]. *Z Ärztl Fortbild* 1995; **89**: 419–423.
- ¹⁶ O'Riordan M. Continuing medical education in Irish general practice. *Scand J Prim Health Care* 2000; **18**: 137–138.
- ¹⁷ Munck AP, Hansen DG, Lindman A, Ovhed I, Førre S, Torsteinnson JB. A Nordic collaboration on medical audit. The APO method for quality development and continuous medical education (CME) in primary health care. *Scand J Prim Health Care* 1998; **16**: 2–6.
- ¹⁸ Munck A, Bentzen N. *Medicinsk Kvalitetsudvikling efter APO-metoden*. Copenhagen: Munksgaard; 1998.
- ¹⁹ Munck A, Gahrn-Hansen B, Sogaard P, Sogaard J. Long-lasting improvement in general practitioners' prescribing of antibiotics by means of medical audit. *Scand J Prim Health Care* 1999; **17**: 185–190.
- ²⁰ Van den Bussche P. [Home Care—Brief Guides for Quality Assurance] [in Flemish]. 7; Antwerpen: Wetenschappelijke Vereniging van Vlaamse Huisartsen; 2000.
- ²¹ Szecsenyi J, Andres E, Broge B, Claus E, Glaeske G. [Quality circles on pharmacotherapy: save at any cost? First experiences from a model project in the North of Hesse] [in German]. *Z Allg Med* 1996; **72**: 493–496.
- ²² Andres E, Szecsenyi J, Broge B. Quality circles (peer review groups) on rational prescribing. *Gesundheitswesen* 1997; **59**: 262–266.
- ²³ Verstappen W, Van der Weijden T, Grol R. *Rational Diagnostic Testing Through Feedback and Peer Review*. Centre for Quality of Care Research (WOK) Report; 2000.
- ²⁴ Winkens R, Pop P, Grol R *et al*. Effect of routine individual feedback, over nine years general practitioners requests for tests. *Br Med J* 1996; **312**: 490.