

A model for continuous quality improvement in small scale practices

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During the past decade new models for quality improvement in health care were developed based on experiences in industry.¹ These models became known as total quality management or continuous quality improvement and are now widely and successfully used in larger healthcare organisations.²⁻¹² In general practice several tools are used to improve care, such as vocational training, continuous medical education, peer review, audit, and guideline development.¹³ Although valuable, these tools usually focus more on improving professional performance than on comprehensive care provision delivered by teams. Little is known about the use of continuous quality improvement in small scale general practice.

The question is whether it is possible to translate the principles of continuous quality improvement into a model for quality improvement for general practice. Simply adopting the strategies of continuous quality improvement used in hospitals or larger organisations may fail because of the specific characteristics of general practice.¹⁴ Most of these practices have, for example, a hierarchical structure in which the general practitioner (GP) is not only the manager but also is often the owner. In many countries general practices have a small staff who lack the time for quality improvement activities.¹⁵

The aim of this article is to reflect on the applicability of continuous quality improvement in small scale practices. Firstly, the characteristics of general practice will be discussed. Secondly, the essential elements of continuous quality improvement are presented by giving a short review of previous publications. Finally, these elements are translated into a framework of practical possibilities for quality improvement in general practice, which results in a model for quality improvement that may be feasible and applicable in small scale general practice. Examples from a study on quality management in general practice done in the Netherlands are used to illustrate the model.^{16 17}

Characteristics of general practice

General practice differs in many respects from specialist care or institutional care. In general, three characteristics of general practice can be discerned. These are related to the type of

health problems presented, the type of care provided, and the type of organisation.

HEALTH PROBLEMS

The health problems with which patients present in general practice are often unspecified and self limiting. In many cases the medical hypothesis a GP works on is a complaint and not a diagnosis. On the other hand, a GP takes care of many patients with chronic diseases such as diabetes, hypertension, and chronic obstructive pulmonary disease.

TYPE OF CARE

The care that GPs provide is characterised by the fact that patients consult their GP for a first diagnosis. They have easy access to this type of care. GPs have long standing relationships with many of their patients, making general practice particularly suited to the supervision of chronic diseases and to perform preventive medicine or community care.

TYPE OF ORGANISATION

Finally, general practices are often organisations with a small staff. A single handed practice often consists of no more than a GP and a practice assistant. They usually have a high workload. In most countries, GPs own their practices and the GP usually also manages the practice. In larger practices, such as healthcare centres, a managing director is appointed. Although in some countries GPs extend their working field into hospitals, they mostly work isolated from other care providers. Conversely, they collaborate with many disciplines to manage the care their patients need.

Such characteristics ask for specific approaches to managing improvement in a systematic and continuous way.

Core elements of continuous quality improvement

According to Berwick, quality improvement consists of a wide array of managerial and organisational activities designed to help managers to understand and streamline production processes, to remove waste and unpredictability, and to achieve previously unprecedented levels of performance.¹⁸ As continuous quality improvement is a collection of activities, different authorities assign different levels of importance

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Table 1 Elements of continuous quality improvement and a framework for small scale practices

Core elements	Consequences	A framework for small scale practices
Management	Leadership Mission and shared vision Targets Resources Favourable changes in organisation	Set targets based on realistic expectations towards practice development and long term policy of the professional organisation Make plans on improvement Establish priorities towards subjects that particularly need improvement Designate a GP as the quality coordinator Hold quality meetings with all staff at regular intervals (for example, once a month) Establish a quality board in practice Integrate the activities in daily work
Based on factual data	Performance measures Analysis of the organisation Satisfaction	Collect data on specific subjects (according to priorities set or projects run and including patient satisfaction), if possible form electronic medical files (other sources include insurers, laboratories, pharmacists, appraisals, etc) Make annual reports on outcomes of care Make annual reports on improvement activities
Systematic approach	Planned activities Use of the quality cycle Use of specific tools and techniques Learn from experience	Run small improvement projects on prioritised issues (management of chronic disease, preventive activities, accessibility, workload) Use tools and techniques that are simple to use and not time consuming (brainstorming, analysis of strengths and weaknesses, flow charts, cause and effect diagrams, etc) Aim at changes in which existing processes are adapted or re-engineered (and build on experience) (ideas to improve processes can come from peer review, continuing medical education, guidelines, publications, etc)
Collaboration	Everyone involved Positive attitude towards continuous quality improvement Team building Participation	Involve everyone in quality improvement activities (everyone is aware of tasks and responsibilities) Build teams for systematic improvement activities Involve patients (and other external customers) in improvement activities

to associated techniques and ideas. When giving an overview of previous publications on continuous quality improvement it seems appropriate to condense these activities into four elements, which we will forthwith refer to as the core elements of continuous quality improvement: (a) a leading role of management, (b) actions based on factual data, (c) a systematic approach, and (d) close collaboration in quality improvement among all who are involved in the care processes, explicitly those involving patients (table 1).^{2 18-20}

MANAGEMENT

In an organisation that uses continuous quality improvement it is clear what needs to be improved and what changes have to be made to bring improvement. Improvement is intended and specific aims are set; the goals are clear, realistic, and challenging.^{4 19 21} Priorities are set because not all goals can be achieved at once.^{18 22-24} Leadership is needed to get continuous quality improvement started, to disseminate it throughout the organisation, and to sustain it.^{5 25-27} Managing improvement demands leadership that motivates people and facilitates continuous quality improvement.^{22 28-30} Resources such as time,

room, possibilities to communicate, and knowledge of change are important also.¹⁹ In brief, practical managerial consequences for continuous quality improvement include leadership, a shared vision, clear targets, and sufficient resources.

BASED ON FACTUAL DATA

Reliable up-to-date facts about the practice and its performance are the starting point for effective decision making and improvement.^{31 32} Assessing patients' needs and expectations towards, and satisfaction with, the organisation can, for instance, yield useful data for quality improvement.³³ Data can convince people that the changes made are really an improvement. Also, maintaining the gains of improvement activities can only be achieved by monitoring performance and outcomes.^{34 35} The practical consequences thus include measuring performance, analysing crucial processes, and collecting data on consumers' needs and satisfaction. For monitoring purposes these measurements are best repeated at regular intervals.

SYSTEMATIC APPROACH

Improvement is a planned activity, an improvement project, in which the quality cycle (PDSA cycle) is used as a process of decision making (fig 1).^{2 31 36-38} Many tools and techniques are available to help improvement teams go through the quality cycle.^{19 39 40} Furthermore, improvement is made step by step. The more complex the processes and the higher the organisational aims, the more steps it takes to achieve excellence.^{19 41-44} Practically, this means that an organisation initiates improvement projects, using the quality cycle and its tools and techniques, and that it learns from experience.

COLLABORATION

In a typical continuous quality improvement culture everyone is involved in improvement. Everyone tries to help others in the organisation

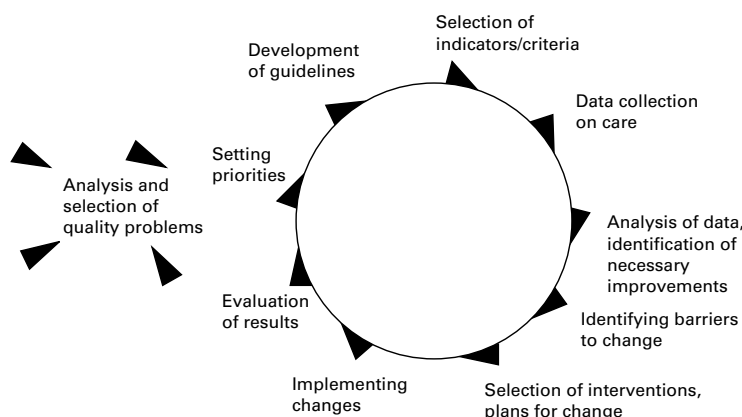


Figure 1 The PDSA cycle. Reprinted with permission from Grol R. *Kwaliteitsbevordering voor en door huisartsen*. Utrecht: NHG/LHV/WOK, 1995.

to do their job better. If anyone is not involved, improvement fails. Everyone should be aware of the targets of the organisation and the responsibility for it.^{19 45} People in an organisation work in teams related to care processes in which they are each other's customers and suppliers. Quality improvement needs patients to be involved because they are part of the organisational processes too.^{19 37 46-50} This means that continuous quality improvement asks for an organisation-wide awareness of the customer-supplier relationship of everyone within and between organisations, and with patients. Collaboration includes team building, involvement of all staff, and a positive attitude towards continuous quality improvement.

Framework for continuous quality improvement in small scale practices

We have translated these core elements of continuous quality improvement into a framework for small scale practices in which the specific characteristics of general practice are taken into account; table 1 outlines this framework. In this section we will discuss the consequences of continuous quality improvement for small scale practices and suggestions as to how practices may cope with these consequences.

To manage continuous quality improvement in general practice the most effective leader has to play the leading part. In small scale practices we can expect the GP, who is the owner and manager, to take the role of the quality coordinator. In larger practices it could be more effective if a quality board, sometimes chaired by a practice manager, has this task. Targets for improvement include the possibilities and challenges of the practice itself as well as the priorities of professional organisations, such as the national medical association and the college of general practitioners. Management includes implementing favourable changes. Quality meetings with all staff during working hours on a regular monthly basis can be of great help. In these meetings the state of improvement activities is discussed and teams for improvement projects are formed. Practices can gradually come to a more specific and shared vision by making plans for improvement and annually revising them. It is important that, especially with a small staff and a lack of other resources, priorities are set for subjects that qualify for quality improvement.

General practice has many opportunities to base actions on factual data. Many practices use an electronic medical file from which essential data on medical performance can be easily derived. Data on specific subjects, according to the priorities set, are available. If a practice is not computerised, essential outcome data may still be available. For example, referral rates can be accessed through insurance companies, pharmacists can provide data on prescriptions, laboratories on test orders, etc. Annual reports on performance and outcomes of care make it possible to evaluate progress. Annual plans and reports on improvement can also help practices to set their targets. In addition to this, practices can collect data on specific subjects in improvement projects.

A systematic approach is best guaranteed if practices run small, easy to handle improvement projects. Lack of time and resources sets the limit to the size and number of quality improvement projects that small scale practices can run. Tools and techniques, including methods to collect data on the indicators of improvement projects, should be simple to use and not time consuming. The role of the practice assistant is important. Brainstorming, analysis of strengths and weaknesses, tally sheets, Pareto-analysis, flow charts, and cause and effect diagrams may be useful, although flow charts and cause and effect diagrams are time consuming and only recommended if large or complex processes have to be rebuilt.^{29 30} In most of the projects, practices could confine themselves to adapting the existing processes. Peer review groups and continuing medical education provide GPs with the opportunity to compare their performance with others.

In small scale practices everyone is already aware of their tasks and responsibilities with regard to collaboration. It seems only a small step to involve everyone in quality improvement. Although it will not be easy to involve patients in improvement projects at first, gaining their participation in improvement teams is the challenge.

Model for continuous quality improvement

Having established the framework of continuous quality improvement in general practice, we can now create a model that can be introduced into practices. To do so, it should be kept in mind that the use of continuous quality improvement will evolve gradually, bringing about many cultural changes. At the introduction therefore the model should at least include those aspects that are crucial for continuous quality improvement and those which we expect to be feasible and applicable in general practice. In our opinion the model for continuous quality improvement should include:

- Involving all staff
- Setting targets for improvement
- Establishing priorities for subjects that especially need improvement
- Doing small and easy to handle improvement projects
- Using the quality cycle and easy to use tools and techniques.

The model should also include favourable changes in the practice organisation, such as:

- Having regular practice meetings on quality improvement with all staff
- Enhancing leadership by designating a quality coordinator
- Making annual plans on quality improvement
- Making annual reports on quality improvement activities and results.

This model was introduced into a small number of practices in a feasibility study which is also reported in this issue of the journal (p36).³¹ To illustrate the model we present two examples of how continuous quality

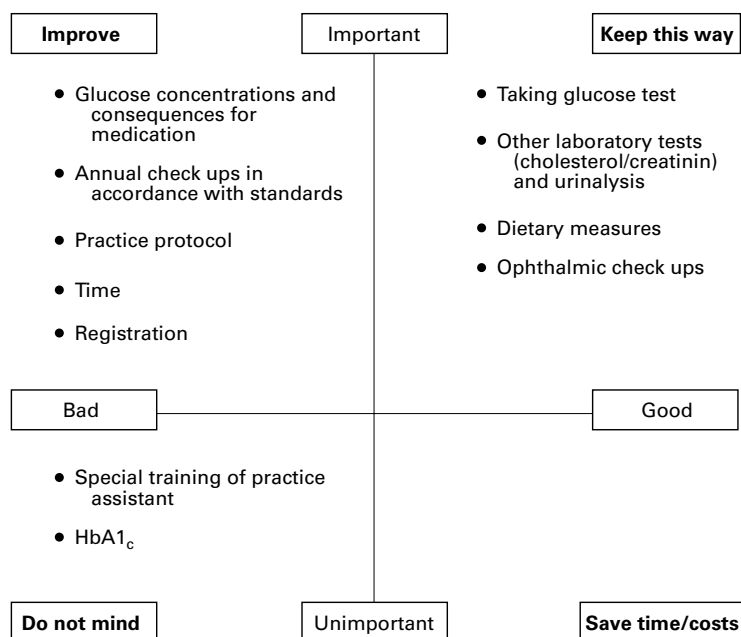


Figure 2 Analysis of strengths and weaknesses on diabetes care (HbA_{1c} = glycosylated haemoglobin).

improvement was used in two practices—a single handed practice and a healthcare centre. In both examples we outline the practice setting, discuss the practice's activities related to the use of the model (paying extra attention to the improvement projects that were run), and give a brief description of the evaluation of the introduction period.

CONTINUOUS QUALITY IMPROVEMENT IN A SINGLE HANDED PRACTICE

Practice setting

Our first example is taken from a single handed practice in a small village in the eastern part of the Netherlands. The practice is responsible for general health care for 3100 people. The practice is run and owned by a GP, who has one full time assistant. The GP delegates some tasks to his assistant. For example, she takes blood samples for laboratory tests, tapes sprained ankles, and takes cervical smears. The GP and the practice assistant discuss their work during lunch and coffee breaks. The practice has an informational brochure about the practice and written information for patients on self limiting health problems. Because they use electronic medical files, they have access to data on the practice population and the prevalence of chronic diseases.

Introduction of the model

With the help of a facilitator, the practice started by establishing *monthly quality meetings* in addition to their ad hoc discussions. The GP was designated as the *quality coordinator*. They made a list of *priorities* through brainstorming and discussing the importance and possible benefits of subjects. The list served as a first *plan on quality improvement*.

Improvement projects

Diabetes care was chosen as the subject of the first *improvement project*. An analysis of

strengths and weaknesses was done to gain insight into the current performance on diabetes care and to specify the aims of the project (fig 2). Based on this analysis the practice team chose to do regular check ups and achieve acceptable blood glucose concentrations as its aims for improving the quality of diabetes care. They added self monitoring of blood glucose concentrations by patients as an aim of the improvement project because this was of special interest to the GP. With the facilitator's help they used the *quality cycle* to do the project. They first set criteria on regular check ups and blood glucose concentrations using the Dutch College of General Practitioners' guidelines on type II diabetes. The practice set its own criteria for patients who monitored their own blood glucose concentration because there were no guidelines available on the subject. Data were collected prospectively on these indicators for three months. The practice continued by designing a new process of care. Plans for change consisted of a consulting hour for regular check ups by the practice assistant and annual check ups by the GP. A protocol was made which provided the practice assistant with guidelines on when to refer patients to the GP. Instructions for patients on self monitoring blood glucose concentrations were also developed. The outlines of instructions for the practice assistant were put on a plastic card, which she could refer to during consultation. No specific arrangements were made for implementing the plans for change. The GP and his assistant seemed to be sufficiently motivated to adhere to their agreements by simply discussing the changes. After nine months, project data were collected again to evaluate the project. The number of patients who received their three month check ups increased from 23 (51%) to 36 (80%) out of 45 patients with diabetes. Furthermore, the number of patients whose blood glucose concentrations met the criteria increased from six out of 23 (26%) to 18 out of 36 (50%), and the number of patients who monitored their own blood glucose concentrations rose from six to 17. The practice decided to *monitor the outcomes* on diabetes care once a year in the future.

Evaluation

Both the GP and the practice assistant were enthusiastic about the results of their first improvement project. They concluded that they had found the model useful, particularly the improvement project. They found facilitation was needed most during the quality meetings and in using the tools and techniques. They both agreed that the facilitation period was too short for a full implementation of continuous quality improvement. To continue working with the model they started a project on hypertension care.

CONTINUOUS QUALITY IMPROVEMENT IN A HEALTHCARE CENTRE

Practice setting

A second example is taken from a healthcare centre in the western part of the Netherlands. The staff consists of six GPs, seven practice

assistants, and a receptionist. The practice is responsible for the general health care of 12 000 people. Physiotherapists, social workers, and home care nurses have consultation rooms in the same building. The healthcare centre has a part time managing director. The practice participates in the vocational training of GPs. Each GP has a minor specialty, such as minor surgery, rectoscopy, or injections in joints. Specialist consultants visit the practice regularly to examine patients together with the GP. Every year the practice makes an annual report. The practice is fully computerised and data on medical performance can be easily derived from the electronic medical files. The GPs and their assistants have monthly meetings in which they discuss the progress of activities.

Introduction of the model

At the introduction of continuous quality improvement the facilitator focused on favourable changes in practice organisation which they had not already made. She established *monthly quality meetings* between the managing director, the practice assistants, and the GPs. This all-staff quality meeting was regarded as a quality board. One of the GPs was designated as the *quality coordinator*, and he also chaired the regular meetings. The facilitator then focused on *setting priorities* for further improvement.

Improvement projects

The quality board decided to start with three small scale *improvement projects* simultaneously. The board briefed teams for each improvement project. The progress of the improvement projects was discussed during the monthly quality meetings. The improvement teams used brainstorming and cause and effect diagrams as tools to identify problems and possible changes. They used flowcharts as a tool to make clear what the new processes would look like after the introduction of change. During the introduction period, which lasted 18 months, nine projects were started of which four were multidisciplinary. Home care nurses participated in a project on diabetes care; physiotherapists participated in a project on low back pain; and physiotherapists and home care nurses were involved in a project on rehabilitation. Another project on cervical smears was done in collaboration with the other general practices of the town. A project on inherited breast cancer was undertaken in collaboration with the university. Projects in which only GPs and practice assistants were involved concerned hypertension care, the way in which patients were charged for medical aid, improvement of the appointment schedule, and vaccination against influenza. The facilitator spent much effort on underlining the importance of the *quality cycle* to the improvement projects. It was not always possible to prevent the teams from making plans for change before having collected essential data on the subject. Protocols on performance were made in all projects.

Evaluation

At the end of the introduction period the quality coordinator concluded that they had made progress in the management of quality improvement, collaboration, and in applying a systematic approach, but that they still were not focused enough on data collection. To emphasise the importance of the cultural change that had taken place, they chose collaboration on quality as a central theme of the conference that they held to celebrate their 25th anniversary.

Conclusions

In larger healthcare organisations such as hospitals, continuous quality improvement has already proved to be a proper way to improve the quality of care. For smaller organisations such as general practices, adapted models are necessary. The model presented in this paper might be suited for general practice as well as other office based practices such as dentists and physiotherapists. Even small scale practices have many opportunities to introduce continuous quality improvement. Some of the activities are already done by practices. Some activities are time consuming, such as quality meetings, collecting data, and making annual reports. Some activities are difficult to do and need facilitation from outside the practice. This may be provided by professional organisations, by local or regional boards for health care, or by health authorities. GPs and staff gradually need to learn to work with the tools and techniques. More importantly, practices need to incorporate a practice culture in which improving the care process is a continuous aim.²⁰ It may be useful to provide courses on quality management. In these courses practices can gain knowledge on data collection and analysis and on running improvement projects, and they can learn how to build teams and coordinate them.

Although the model for continuous quality improvement seems feasible for small scale practices and its applicability could be enhanced by facilitation, practices may find some aspects difficult to adopt. One of the most striking aspects may be involving patients in quality improvement. Although it is probably one of the most important elements of continuous quality improvement, one could not expect practices to ask their patients to participate in their activities until the practice had gained some experience. Another issue that could certainly evoke difficulties is the culture change that continuous quality improvement brings about. Looking back upon the characteristics of general practice one could expect that, specifically, the organisational structure of practices would be the breeding ground for obstacles to the use of continuous quality improvement. Favourable changes in practice organisation from working with continuous quality improvement may well disappear soon after the facilitator has left the practice, and other activities may also disappear under pressure of limited time and resources. Is it possible for GPs to set aside part of their autonomy as owner and manager in

favour of involving others in quality improvement? Owing to cultural changes, the introduction of continuous quality improvement might well be the biggest and most challenging improvement project a practice can run. If we want practices to accept the challenge of adopting continuous quality improvement we need to consider whether it is worth all the effort and which aspects of continuous quality improvement are most important for general practice. Research will have to take on that challenge.

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