Guidebook on implementation of Quality Improvement in General Practice

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**Introduction**

Quality improvement (QI) processes are inseparable elements of modern general practice/family medicine that are undertaken to improve and assure the safety, quality, and cost efficiency of health care. Rising expectations towards general practitioners/family doctors require from them to be actively involved in quality improvement activities. There are diverse methods, tools and approaches to the QI processes in general practice, which results in multiplicity of obstacles that can be met on the way towards better quality of delivered care. The aim of this publication is to present the scope of activities that can be undertaken by general practitioners in order to successfully implement quality improvement activities. It is targeted at regular GPs looking to improve the quality of their practice at an individual or group practice level.

The Guidebook is structured into three interrelated parts. Each chapter is provided with a comprehensive set of references. The first part presents general concept of quality improvement in family practice. Emphasis is put at the GP’s education process and competency profile. Examples of some successful quality improvement projects in European countries are described. The second part provides an overview of the quality improvement methods and tools that can be used at an individual GP and/or practice level. Requirements and steps of quality cycle implementation are described as well as other, the most popular and with a proven effectiveness QI methods. Issues of patient safety and approaches to overcome possible barriers in implementing QI initiatives are highlighted. The third part provides additional literature section for those interested in further development of in-depth quality studies and glossary of terms.

The Guidebook is aimed at helping regular GP to develop the necessary knowledge and skills in order to understand and manage basic quality improvement methods. It provides an overview of the most important theoretical aspects and practical recommendations that every ‘beginner’ in the field of quality improvement should find useful.
PART I  Concepts & Examples
Chapter 1  Quality and Medicine

Richard Baker

Learning objectives:
- ability to describe in brief the evolution of approach to Quality in medicine
- ability to describe in brief the history of Quality Improvement in Family Medicine

Quality improvement is an integral feature of modern general practice

The place of primary care in health systems is now well established. It helps prevent illness and improve health, and can reduce the overall costs of care through reducing demand for specialist interventions. General practice is the core discipline of primary care, and general practitioners therefore have a key role in the effectiveness and efficiency of health systems. Yet the task facing general practitioners is growing more challenging by the day.

Firstly, the proportion of people aged 65 or older in the population of most countries is increasing, and older people have greater need for health care. Secondly, economic constraints have become more acute, making the expansion of general practice and increased resourcing of primary care difficult. Thirdly, scientific advances mean that not only more patients, but patients with more complex problems, can be managed in primary care, and consequently general practitioners have to absorb the new research evidence and apply it in the midst of already busy and demanding working lives. Nevertheless, despite these challenges, policymakers and funders need the consistent delivery of high quality, safe general practice in order to sustain national health care systems.

It follows that general practitioners cannot restrict their responsibilities to individual patient care. General practices are small enterprises, and they need management and leadership just as much as larger organizations. Furthermore, each general practice cares for patients with countless different conditions, even those practices that are restricted to certain patient sub-groups. Consequently, general practices need effective quality improvement systems rather than occasional, isolated quality improvement projects alone. Such systems must be applicable to almost any clinical condition, have a strong patient experience focus in view of the many patient interactions with the practice, and be simple and low cost to operate given the context of multiple small providers. This new guidebook sets out to address this demanding challenge.

Some history

Quality, of course, has always been a concern of doctors. This has been expressed in various ways, and for example can be found in the Hippocratic Oath dating from 430-330 BC – ‘I will use my power to help the sick to the best of my ability and judgment’. However, it was not until the emergence of modern medicine in the 19th and 20th centuries that quality improvement became a systematic process and itself the subject of research. Florence Nightingale is often given credit for initiating quality improvement, through her work in the 1850s using statistical methods to explain causes of death of soldiers during the Crimean war. Her methods to bring about change included the education of nurses, establishing good practice on the design of hospitals, and influencing decision makers from...
Queen Victoria and her government ministers downwards. At the beginning of the 20th Century, Ernest Codman, a Boston surgeon, published annual reports of errors he had made so that others could judge the quality and outcome of care. His peers of the time did not welcome his openness, and in 1911 he left the Massachusetts General Hospital to found his own hospital. In the first half of the 20th century, the routine collection of mortality and other statistical data became common in many countries, and inquiries and investigations into aspects of care took place and contributed to professional practice and national policies, examples including maternal mortality and anaesthesia related deaths. After the second world war, the pace of development accelerated. Paul Lembke, a US public health physician, showed in the 1950s how medical audit could lead to better clinical decision making in a classic study of hysterectomy. Avedis Donabedian set out the framework for quality improvement, including a definition of quality, a description of methods, and the now universally adopted classification of care into structure, process and outcome.

Around the same time, progress began in general practice. Influential observational studies of quality in general practice were undertaken in the US by Peterson, in Canada by Clute, and in England by Collings. These documented the strengths and weaknesses of general practice in those countries and triggered major reforms that helped establish the basis for quality improvement, including continuing education and the beginning of primary care teams. During these years, general practice was itself developing. Initially regarded as a less important and less prestigious branch of medicine, at varying speeds and to varying extents, in most developed countries general practice has become better resourced and appreciated. Professional leadership has strengthened through the creation of associations and colleges. Research into the discipline of general practice and how it can be improved, blossomed. After a small number of enthusiastic general practitioner exponents of quality improvement showed what could be done in their own practices, leadership was provided through a partnership between researchers and general practice organizations. For example, in Europe, the role of WONCA Europe and its network organization EQuiP has been fundamental.

The European Association for Quality in General Practice/Family Medicine (EQuiP) was established in 1990 under its first chair, Richard Grol, Professor of Quality of Care at Nijmegen University. He was the outstanding researcher of quality in general practice, and was an outstanding leader as well, a combination of qualities that gave EQuiP impetus and impact. Through the conduct of demonstration projects and interaction with influential decision makers, quality improvement in general practice took root in general practice most European countries. Under its current president, Tina Eriksson, the aim of EQuiP remains to promote quality improvement in general practice among all countries in Europe. Its activities include steps to influence policy within countries and across Europe, to provide practical methods, and to provide leadership and encouragement to GPs in the field of quality improvement. Methods developed by EQuiP include an instrument to measure patient experience of general practice designed specifically for countries in Europe and available in European languages (EUROPEP), the European Practice Assessment (EPA), a method for assessing practice management amongst European general practices, and the International Family Practice Maturity Matrix, an organizational assessment aimed at stimulating quality improvement in primary care. There are also conferences and meetings, and opportunities for training and networking. In 2011, Wonca Europe approved a proposed change of name and remit of the association to include patient safety, so that without changing “EQuiP”, it became the European Association for Quality and Safety in General Practice / Family Medicine.
Over the last decade, increasing support for quality improvement activities has come from international agencies such as the Institute for Healthcare Improvement, the Picker Institute Europe, and country specific groups such as the Primary Care Foundation. These draw on a variety of research and business experience to offer services advice and support. There are journals specific to quality, including BMJ-Quality and Safety and Implementation Science, and even a journal specific to primary care – Quality in Primary Care.

The future

But does all the activity of recent decades constitute progress in quality in general practice? Almost certainly it does, although it is difficult to disentangle the effects of quality improvement activities from other interventions such as improved training of general practitioners or increased investment in facilities and electronic record systems. In many countries, the development of general practice has been linked with improvement of quality; in order to establish and maintain an accepted role in the health system, general practice has had to demonstrate quality. The development of general practice and the development of quality improvement have gone hand in hand. Many health system funders now expect general practices to deliver care to determined standards, and to have the systems in place to enable this to happen.

However, the goal of embedding quality improvement throughout general practice is not yet achieved. It would be inaccurate to claim that all medical practices and medical practitioners, or indeed all general practices and general practitioners across Europe are proficient in quality improvement; even those who are proficient do not necessarily use the methods of quality improvement on a routine basis to monitor, maintain and improve health outcomes. Much remains to be done before the full potential of quality improvement is realized.

Encouragement, leadership, training and support all have crucial roles to play. The general practitioner, by definition, cannot be an expert in everything, and this applies to quality improvement as much as it does to neurology or ophthalmology. Nevertheless, every general practice should have sufficient expertise to understand and manage the quality of the care it provides. Small practices will find it difficult to acquire and apply such expertise, and it is time that experiments are conducted of different organizational forms that can help to bring small general practices together into affiliations or partnerships. There may be practical ways in which quality improvement expertise can be more efficiently shared between practices. Even so, it will be necessary for every GP to be proficient in the principles of quality improvement, and to be active participants in quality improvement activities. The challenges faced by health care systems are so great that quality general practice is now imperative and everyone in general practice must be a driver of quality; there is no room for passengers in delivering quality. The following chapters set out methods and approaches that general practitioners will find helpful.

Key messages

- The challenges faced by general practitioners have been increasing due in part to factors related to economic constraints, demographic changes and scientific advances.
In many countries, the development of general practice has been linked with systematic documentation and demonstrations of improvements in quality in order to help establish an accepted role for general practice in a health system.

Quality improvement is an integral feature of modern general practice. In Europe, a WONCA network organization – The European Association for Quality and Safety in General Practice/Family Medicine (EQUIP) has a leading role.

A challenge for the future is for all general practitioners to use quality improvement methods on a routine basis to monitor, maintain and improve health outcomes. Encouragement, leadership, training and support all have crucial roles to play.

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Chapter 2  Importance of Quality Improvement in General Practice

Tina Eriksson

Learning objectives:

✓ understanding why GP/FP are an important target group for Quality Improvement
✓ ability to list the main reasons for introduction of Quality Improvement in GP/FM

Quality Improvement (QI) is systematic, data-guided activities designed to bring about positive changes in the delivery of care. It is a clinical and managerial opportunity and a key component of professional accountability.

GPs are obliged to engage in QI. Primary care is an important part of health care systems, and the one that deals with the initial assessment and continuing care of populations with chronic medical conditions and with undifferentiated symptoms. Therefore, GPs/FPs have the capacity to improve the health of the populations they serve.

During the last three decades, QI has grown in conceptual importance in general practice, as well as in other areas of medicine and many other aspects of society. The importance of QI in GP/FM is increasing due to demographic change and the growing burden of chronic disease, such as Diabetes Mellitus (DM), Chronic Obstructive Pulmonary Disease (COPD) and Ischaemic Heart Disease (IHD) globally and in Europe. Prevention of chronic disease and care for patients with chronic conditions are at the core of GP/FM, and it is crucial that the care delivered amended as started from evidence based to evidence informed.

Many different aspects of GP/FM are targeted for QI, for example the various aspects of clinical practice (clinical indicators, prescribing data, prevention), organizational practice and service, patient satisfaction, patient safety, the doctors own health, work satisfaction among GPs and staff, and attempts to assess the quality of the psychosocial part of the consultation.

Concerning the possible actions aimed at improving or maintaining quality, a wide range of methods and tools have been used and tested, starting with the introduction of the Plan-Do-Check-Act circle. Educational measures, peer support, team building, external facilitation and control have been introduced. More recently methods based on Information and Computer Technologies (ICT), such as continuous capture of quality data and decision support systems are under development - sometimes even integrated into the Electronic Health Record.

In several European countries, practice accreditations schemes are mandatory, and recently, EQuIP published results of a European survey on the subject.

QI is an established part of European General Practice, and it is difficult to argue against that GPs have an obligation to take on the task of assessing different aspects of their work and react to address substandard care. In the coming years, the ICT development will increase the GPs potential for QI activities with hopefully less efforts.
Though not all schemes have proved efficient, there is growing evidence that the methods have the possibility of improving clinical GP/FM.

**Key messages**

- QI is systematic, data-guided activities designed to bring about positive changes in the delivery of care.
- QI is a clinical and managerial opportunity amended from and to a key component of professional accountability.
- QI is a way to ensure that the delivered care meets evidence based and evidence informed standards.
- QI may target many aspects of GP/FM, such as clinical indicators, prescribing data, prevention, organizational practice and service, patient satisfaction, patient safety, the doctors own health, work satisfaction among GPs and staff.
- QI methods and tools may be educational measures, peer support, team building, external facilitation and control, most often with a basis in the Plan-Do-Check-Act circle.
- In the future Computer Technologies (ICT), such as continuous capture of quality data and decision support systems will be integrated into the Electronic Health Record and thus widely used.

**References**


Chapter 3  Quality Improvement teaching

Marija Petek-Šter, Janko Kersnik

Learning objectives:
✓ ability to describe how Quality Improvement can be taught
✓ ability to understand what are the benefits of Quality Improvement education in GP/FM

Introduction

The aim of any medical teaching is to implement evidence, clinical guidelines, new procedures or best practice to make patient care more effective, efficient, safe and patient-friendly. Medical education alone is not enough; knowledge, skills and attitudes on continuing quality improvement are needed to assure that growing body of research evidence is introduced into daily practice. Appropriate interventions comprise different types of activities intended to improve the knowledge and skills of the target group.

Medical knowledge increases during basic medical training, but gradually decreases over subsequent years if not supported by adequate continuing professional development. During undergraduate and postgraduate courses, acquired knowledge and skills are only weakly associated with actual performance, so actual performance has increasingly become yardstick of educational outcomes. Continuing education has gradually developed into continuing professional development with the focus on learning needs of the individual care provider.

Significant variations arise when introducing evidence and clinical guidelines into routine daily practice. Data show that many people do not receive up-to-date care, and they may even sometimes receive unnecessary care or even harmful interventions. Substantial evidence suggests that is possible to change providers’ behaviour, but these changes generally require comprehensive approach at different levels (physician, practice team, social milieu) and should be tailored for specific settings and target group.

Recently, in basic and continuing medical education, passive, large scale teaching methods have been replaced by small-scale, motivational types of education. Motivational education is mostly based on adult learning theory. These theories assume that adult learners are intrinsically motivated to learn and that they can guide their own process of learning themselves. Adult prefer to learn new insights by means of specific problems that they have experienced in daily practice (problem based learning).

One important principle to be regarded in problem-based learning is that individuals have different learning styles. Therefore, relevant education should meet these different learning styles.

Most published quality improvement (QI) curricula apply sound adult learning principles and demonstrate improvement in learners’ knowledge or confidence to perform QI. The recommendations for teaching QI based on the results of systematic review are:

- Teach collaborative skills
Facilitate experiential learning (using incremental changes from trial and error)
Provide learners with opportunities to work closely with colleagues from other disciplines
Use the basic principles of adult learning and collaborative small tests

The potential impact of teaching quality improvement on processes and outcomes of care is still not proven in larger studies. Although the effect of educational curricula on behaviour may be limited due to complex confounding factors, it is often a necessary first step in a process of implementation of innovations. Education is particularly valuable if it is a part of a broader implementation strategy that includes other interventions promoting change as well.

Methods of teaching QI

There are several methods of teaching QI from provision of educational material to face-to-face detailing. Each of them has its strong and weak points.

**Educational materials**: publication or mailing of written recommendations for clinical care, including guidelines, audiovisual materials, electronic publications and educational computer programmes. Interactive Internet websites and distant learning programmes are in this category.

**Large-scale educational meetings**: participation of care providers in conferences and lectures that are large scale. Large-scale meeting focused on the presentation of information in an oral/visual format. This category includes lectures, seminars, presentations, courses and conferences. Participants are usually passive listeners.

**Small-scale educational meetings**: participations of care providers in workshops, skill training, educational group, local consensus group and quality circle or peer review group outside the practice settings. The aim of these meeting is more functional: skill training to learn technical or communication skills or development of a local consensus. Participants are usually actively involved in small group discussions exchanging and sharing experiences which promotes learning uptake.

**Practice visit**: contact in the providers’ practice with the care provider and a trained individual who provides information, instruction and support and sometimes also feedback on current practice. The visitor should be a physician, nurse, pharmacist or other provider involved in actual patient care. This type of education has been applied mainly to rationalise physicians’ prescribing behaviour, but also to promote preventive practices. Specific techniques of outreach visits are: interview to investigate baseline knowledge, current practice pattern and motivation to change for the defined set of care, defining clear educational and behaviour objectives, stimulating physician’s active participations in educational interactions and provision of positive reinforcement of improved practices in follow up visits.

**Opinion leaders**: Educational activities provided by “opinion leaders” – individuals who are seen by other members of the professional group as an influential in specific clinical or professional area.
Table 1. Strong and weak points of particular QI methods

<table>
<thead>
<tr>
<th>Method</th>
<th>Strong points</th>
<th>Weak points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educational materials</td>
<td>− Cost effective</td>
<td>− Participants are passive, except interactive internet websites and distant learning programme.</td>
</tr>
<tr>
<td></td>
<td>− Can support other activities.</td>
<td>− Limited evidence on effectiveness.</td>
</tr>
<tr>
<td>Large-scale educational</td>
<td>− Informative, cost effective</td>
<td>− Participants are passive.</td>
</tr>
<tr>
<td>meetings</td>
<td></td>
<td>− Justified for introduction of new concepts and practices.</td>
</tr>
<tr>
<td></td>
<td>− Impact on current practice is limited.</td>
<td></td>
</tr>
<tr>
<td>Small-scale educational</td>
<td>− Participants are actively involved</td>
<td>− Time and money consuming.</td>
</tr>
<tr>
<td>meetings</td>
<td>− Learning skills</td>
<td>− Appropriate to support behavioural change in important targeted areas where motivational peer support is needed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>− Some evidence for effectiveness in changing current work.</td>
</tr>
<tr>
<td>Outreach visit</td>
<td>− Active participation</td>
<td>− Appropriate to support behavioural change in important targeted areas where expertise on the subject is needed.</td>
</tr>
<tr>
<td></td>
<td>− Positive reinforcement</td>
<td>− Some evidence for effectiveness.</td>
</tr>
<tr>
<td></td>
<td>− Follow up visits</td>
<td></td>
</tr>
<tr>
<td>Opinion leaders</td>
<td>− Clear recommendations</td>
<td>− Seems to be effective.</td>
</tr>
</tbody>
</table>

Fig 1. The problem based QI learning cycle. Adapted from: http://staff.kings.edu/jkmoore/PBL/cycle.htm
Determinants of effective education

There are several factors that can influence effectiveness of an educational activity:

1. **Duration of education**: Education, lasting less than one day is less effective, than education of several days, but there were hardly any differences between education of two days and education of more than 12 month.

2. **Group composition**: The education is more effective if the participants are from one organisation compared to group of care provider from different organisations.

3. **Needs assessment**: Should be tailored on a way that taking into account content (topic) and format of education (educational method based on the aims learning style).

4. **Active participation**: Improve the effectiveness of education, because it increases motivation and provide opportunity to focus the programme on personal learning needs.

5. **Use of opinion leaders**: Opinion leaders have different roles as signing educational materials or delivering lectures during educational meetings and seem to have positive effect on educational outcomes.

Benefits of QI education in GP/FM

There is a constant drive to improve the quality of patients care and prevent the occurrence of avoidable errors. Through research we want to improve quality of primary care by improving our understanding and practice of it. Educational activities increase learner’s knowledge and skills and help them to integrate QI activities into daily work. QI curricula should provide learners with access to resources that facilitate their QI activities, such as performance data and pre developed process improvement tools.

Conclusions

The notation of quality of care is complex and quality improvement needs medical, contextual and policy evidence. The role of teaching in QI is to change provider’s behaviour by learning about quality improvement using different methods. There is some evidence that the interactive and personally tailored education is more effective than passive large scale educational activities. Careful integration of safety and quality competencies across the various activities is critical to assure consistency, avoid redundancies and build capacity.

Key messages

- Interactive and personally adaptable educational activity is more effective than passive large scale education.

- In tailoring educational activates the effectiveness of the intervention should be taken into account.
The impact of educational interventions themselves on behavioural change may be limited. The effect of education on physicians’ behaviour can be better if an education is a part of broader implementation strategy of QI.

References

Chapter 4  Content of Quality Improvement education

Zalika Klemenc-Ketiš

Learning objectives:

- getting familiar with the most important content of Quality Improvement education
- ability to list most important topics in Quality Improvement knowledge
- ability to list most important skills in Quality Improvement
- ability to define most important Quality Improvement attitudes

Introduction

Several different theoretical frameworks can be used to try to describe what is expected from general practitioners (GPs) or family doctors (FDs) in the field of quality improvement (QI). Some of them are based on health system design (for example crossing the quality chasm model, Bellagio model) while other models deal with teaching QI in continuous medical education (CME) and continuous professional development (CPD) (for example Canadian educational model for medical students (Canmeds)), Accreditation Council on Graduate Medical Education (ACGME), Institute of Medicine (IOM) “health profession education”, and the Joint Policy Document from the European Academy of Teachers in General Practice (EURACT)/ European Association for Quality and Safety in General Practice/Family Medicine (EQuIP).

The European definition of Family Medicine, a document created by WONCA in 2005, describes the importance quality assurance. Yet, the EURACT educational agenda from 2005 does not include QI as a separate topic.

The current situation in Europe on teaching quality remains variable. There are countries within Europe that do not have this topic as a part of their curricula. Also, there is no systematic inclusion of QI in curricula of European countries and there is no consensus between experts in QI and experts in teaching about which QI topics should be included, their relative importance, and how they might be included in a curriculum.

In this chapter, QI topics and learning objectives are presented, based on literature review, EQuIP cross-sectional survey and professional opinions of QI and teaching experts.

QI topics

In the recent years, CPD is a term preferably used instead of CME. In 2002, EURACT and EQuIP published a Policy Document entitled “Continuing Professional Development Integration of Formal CME and Quality Improvement Initiatives”. Based on its content and a desire to (re)define a set of skills for European GPs/FDs which should be taught in medical training and in CPD, experts in EQuIP were brought together in a working group and over the course of several sessions a list of topics to be included in teaching and in the CPD curricula was produced. These topics are:

1. Dealing with critical incidents
2. Measuring practice performances (benchmarking feedback and audit)
3. Assessing the quality of patients’ electronic medical records
4. Implementing (evidence-based – EBM) guidelines
5. Using the Plan-Do-Check-Act strategy for quality projects
6. Patient centred working (starting from patient experience, reflecting on practice performances)
7. Working with the practice population
8. Working in a team (in the practice, in a network and in the community)
9. Leadership of doctors as a motor for QI
10. Teaching the theoretical framework behind QI

Fig 1. QI topics in General Practice

Learning outcomes

Based on the literature review, cross-sectional survey and professional opinions of QI and teaching experts, the teaching of quality improvement should be an obligatory part of medical education. It should be integrated at all levels and aspects of medical education, rather than as a separate part. The proposed content of QI education should be divided according to learning outcomes: knowledge, skills and attitudes, each consisting of several areas that shall be covered during medical education. Figure 2 presents a schematic framework of learning outcomes.
Fig. 2 Learning outcomes
Conclusion

The important feature of teaching quality is putting focus on an integrated proactive approach rather than reactive approach. This means that it is equally important to teach students, residents and established doctors how to assure the quality of their work in a process of continuous quality improvement and not just teach them how to deal with aspects of their work which are of low quality. The ultimate goal of teaching quality should be to help doctors appreciate that the responsibility to deliver high quality of care is their own professional responsibility within the constraints of their health system.

Key messages

- QI topics should be a part of the medical curriculum at all levels of education.
- Learning objectives should be divided into knowledge, skills and attitudes.
- Teaching QI should focus on a proactive rather than reactive approach.

References

Chapter 5  Continuous Medical Education and Quality Improvement as part of Continuing Professional Development

Zbigniew J. Król

Learning objectives:
- understanding the concept of CME
- understanding the importance of CME and QI in CPD

There are three aspects related to the changing role of the family physician/general practitioner within the health care system today: continuous developments in medical science; rising expectations of patients and the community and changing characteristics of the health system. All of these influence one common trend in primary care – the increasing need for GPs to be able to demonstrate professional responsibility for provision of high quality care. Figure 1 presents a schematic illustration of the outlined above the changing role of GPs.

![Figure 1: Changing role of GPs within the health care system – current situation](image)

Each of these three dimensions outlined above requires specific procedures, methods and activities for the GP to reach a level of competence and performance. From the perspective of the health system these dimensions could be described as processes of:

- continuing medical education (CME);
- quality improvement (QI)
- personal development plan (PDP) to assist general practices to respond to health system demands.
CME, QI and PDPs are continuous longitudinal processes rather than discrete single actions. There are planned activities with defined certain goals supported or required by health care systems. Nowadays a real challenge is to adapt the most effective methods from CME, QI and PDP and combine them altogether in one common process so they can support and strengthen each other to improve care. That combined process is called Continuing Professional Development (CPD).

At the beginning of the century two groups of experts from WONCA Europe: the European Association for Quality and Safety in General Practice/Family Medicine – EQuiP, and the European Academy of Teachers in General Practice – EURACT, presented a policy document: “Continuing Professional Development in Primary Health Care: Quality Improvement integrated with Continuing Medical Education”. The purpose of this document was to give recommendations on the characteristics and conditions needed for effective integration of CME and QI. A description of the tools, methods and activities connected with the processes from GP perspective will be outlined in this chapter.

Concept of Continuous Medical Education (CME)

In the Joint EQuiP & EURACT policy document we can find a brief definition of CME: “any and all ways by which physicians learn and change in practice”. This highlights the expectations and demands on GPs to keep up to date on all developments occurring in medicine that relate to care of patients, the practice population and the wide-ranging needs of the practice in general.

The knowledge and skills acquired during medical education (undergraduate and postgraduate) are insufficient to keep the optimum level of competence throughout an entire individual professional career. GPs, just like other physicians, are expected to effectively engage in lifelong learning strategies. The system of CME in a country needs to reflect the context of that particular health system including policy-makers, decision-makers and health fund-holders in close collaboration with GP national associations and support the development of lifelong-learning skills and competencies. CME programmes, methods and tools in any health system should be relevant to the practice profile, address the needs of GPs and include continuous assessment of how new knowledge and skills impact on patient care and practice performance.

CME refers to a particular form of education that helps GP maintain competence and learn newly acquired information and data from research and publications and shared experiences among peers. The methods are widely known and may take place as live events (presentations, lectures, workshops) or written publications as well as online programs and other electronic supported tools like DVDs. CME programmes and methods should be developed and reviewed by faculty who are experts in the field of general practice/family medicine. CME should include arrangements to motivate individual GPs to be active participants rather than passive recipients of CME.

The GP, as a self-directed adult learner must keep themselves informed and must be able to use her/his own techniques to maintain competencies and continuously seek new possibilities to improve care. The first step in development of this Personal Plan usually begins with a self-assessment of learning needs. It is strongly connected with the individual GPs practice and practice...
population. The planning process should reflect the everyday practice of individual GPs and take into consideration needs of practice team. Data collected in the practice such as medical records is outstanding source for setting directions of clinical needs and for analyzing and planning process to gain specific knowledge or skills. Example of assessment of learning needs are:

- Needs assessment (identifying individual GP needs; patient – community; practice team),
- Publications (written and electronic),
- Courses and conferences (also on-line learning),
- Peers meetings (case discussion; learning cycle; presentation).

**Quality Improvement**

There is no single definition of quality in health care that clarifies the discrepancies in terminologies used for quality assessment, quality assurance, quality improvement or quality development.

In the EQuiP & EURACT joint policy document we find a clear description of quality development: “(...) a continuing process of planned activities based on performance review and setting of explicit targets for good clinical practice with the aim of improving the actual quality of patient care.”

The “quality tools” most often described refer to methods used to improve work processes as utilised by individuals, teams, organizations or health care systems in continuous quality improvement. Many quality activities in health care were adapted from industry and were started in hospital based healthcare. Such tools used in hospitals like brainstorming, cause-and-effect diagrams, nominal group technique, Delphi methods, flow charts, histograms, control and run charts, Pareto diagrams, checklists, patient pathways, or benchmarking for example, are rarely used in GP practice and in many case irrelevant there. Issues such as effectiveness, feasibility and costs of quality tools and methods used in health care are sources of much debate. We may ask how much time GPs should spend learning and using these tools. Just because there is no clear answer for general practice yet should not prevent GP’s from making an effort to implement continuous quality improvement.

Quality improvement methods consist of three main elements.

1. performance (guidelines, protocols),
2. changes in clinical practice (audit and feedback, decision support programs),
3. measurement (whether or not improvement has occurred).

Using the well-known Donabedian framework is easier to find proper tools:

- **STRUCTURE**
- **PROCESS**
- **OUTCOMES**

**Table 1** presents the above described framework of quality and relevant examples applied to general practice.
Table 1. Donabedian’s model of Quality

<table>
<thead>
<tr>
<th>Concept</th>
<th>Description</th>
<th>Examples</th>
</tr>
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<tbody>
<tr>
<td>STRUCTURE</td>
<td>premises</td>
<td>national safety regulations</td>
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<tr>
<td></td>
<td>equipment</td>
<td>re-certification and accreditation schemes</td>
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<td></td>
<td>human competences</td>
<td>medical record system</td>
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<td></td>
<td>practice organization</td>
<td>teamwork</td>
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<td></td>
<td></td>
<td>peer groups</td>
</tr>
<tr>
<td>PROCESS</td>
<td>actual delivery of care</td>
<td>implementing clinical guidelines and protocols</td>
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<td></td>
<td></td>
<td>promoting peer reviews of GP</td>
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<td></td>
<td></td>
<td>promoting quality cycles</td>
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<td></td>
<td></td>
<td>practice audits/visits</td>
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<tr>
<td>OUTCOME</td>
<td>health status of patient or population, or results of evaluation done by patients</td>
<td>patients’ evaluation surveys</td>
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<td></td>
<td></td>
<td>outcome of care analyses</td>
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</tbody>
</table>

Personal Development Plan (PDP)

Individual or personal development planning entails assessing one’s own strengths and weaknesses and development needs. The needs should be customized according to the GPs’ practice, patients and community care issues as well as GPs own role as a practice team member. In preparing a personal development plan the GP can modify the plan in order to distinguish short-term goals for current performance from long-term goals of professional aspirations. At this stage of planning, the GPs’ action plan to achieve these desired outcomes can and should combine planned activities using tools of CME and QI. Time frames of achievements have to be the same for whole action plan.

Methods used should be actively self driven and are:

- Self-assessment
- Courses on personal development organized by professional GP associations

Continuing Professional Development (CPD)

From the EQuIP & EURACT joint policy document we find a description of continuing professional development: “a process of lifelong learning in practice. CPDs endpoint should be [related to] the quality of care. CPD must help to improve the quality of care, try to demonstrate its effectiveness and must become a properly managed activity by both the physician and profession.”

The goal of CPD is to improve the delivery of good-quality patient care. This goal can be reached by improving the environment of GP practice and improve patient outcomes. The tools, methods, activities or programmes for increasing the impact and ensuring quality of CPD, should be to develop and implement changes that are practice specific and in keeping with a needs-based learning plan.

CPD consists of any activity which helps to maintain, develop or increase knowledge, problem-solving, technical skills, quality of care or professional performance standards all with the goal that physicians can provide better health care. CPD combines activities formally connected with CME e.g. courses, conferences and workshops, self-directed activities such as mentorship and directed
reading, as well as information derived from quality assessment using tools like small groups tutorials, practice audits, peer review groups, quality cycles or medical records.

Though CPD obligations are common to most professions, in primary care there is an urgent need for further development, standardisation and refinement under the umbrella of quality improvement. Colleges, universities, teaching centres involved in CME processes and those who organise Quality projects must combine their efforts to effectively integrate activities in CPD. It is challenging to consider the creation of a common European framework for CPD including CME and QI initiatives and recommendations for tools and methods that can be implemented in GP practices regardless of their location in Europe. Such a framework can prevent the creation of barriers caused by large differences in primary care and CPD systems between the countries and through integration, support the sharing of good clinical practice in primary care across Europe.

**Key messages**

- There are three dimensions to the role of the family physician/general practitioner role within the health care system: continuous developments in medical science; rising expectations of patients and society and changing characteristics of the health system.
- The processes of: continuing medical education (CME), quality improvement (QI) and creating GP’s personal development plan (PDP) constitute the response to the increasing demands and expectations of the roles and obligations of European family physicians/general practitioners.
- CME refers to a particular form of education that helps GP maintain competence and incorporate newly acquired information and data from research and publications.
- QI is a continuous process of planned activities based on performance review and setting of explicit targets for good clinical practice with the aim of improving the actual quality of patient care.
- Personal development planning (PDP) involves self-assessment to identify personal strengths, weakness and development needs. GPs creating her/his PDP should combine planned activities using tools of CME and QI.
- The goal of CPD is to improve the delivery of good-quality patient care. CPD combines activities formally connected with CME and information derived from the quality improvement process.

**References**

2. EQuIP and EURACT Policy Document: Continuing Professional Development in Primary Health Care. Quality Development integrated with Continuing Medical Education.
Chapter 6  General Practitioner's competencies in Quality Improvement

Katarzyna Czabanowska

Learning objectives:

- ability to list the main 6 domains of GP competencies in QI
- awareness of the complexity and interrelationship between the specific competencies
- understanding the methodology and process of developing the competency framework

The following chapter describes a Quality Improvement (QI) Competency Framework which can serve as a self-assessment tool for General Practitioners/Family Doctors (GPs/FDs). It will assist them in identifying their educational needs in the area of QI. The QI Competencies are also intended to support practicing GPs/FDs in leadership roles who are considering introducing Quality Improvement projects into their practice.

In order to create the list of quality improvement competencies, an extensive literature review was performed. This review focused on literature from 2000 to present in English worldwide and addressed quality improvement competencies for general practitioners in continuing education programs. PubMed, Cochrane Library, EMBASE, and Google Scholar were used, as were a selection of quality improvement and general practice associations. Articles previously identified as relevant were also included. 362 citations were found.

Combinations of the following terms were used:

- Quality Improvement competencies
- Quality improvement
- Quality improvement curriculum
- Teaching quality improvement
- General practitioner/Family practice/General physician
- General practitioners/Family physicians and quality improvement competencies
- Quality Improvement and Medical Education
- Continuing medical education

The citations were screened using appropriate research methods for relevance to general practice/family practice. This list focused on duplicate competencies and 55 competencies were identified (at this stage). This list was sorted into 5 categories: Patient Care & Safety, Ethics, Research & Evaluation, Leadership & Management, and Education & Continuing Education.

Review Rounds

A two stage process was used to refine the list of QI competencies and their domains. The first round of review took place during the EQuIP Invitational Conference, Value for Money in General Practice-Management and Public Trust, Copenhagen 7-9 April, 2011. Beginning with 55 competencies in five...
domains this first round of review produced 37 competencies in 6 domains (or categories) were agreed.

A second round of review was conducted using a questionnaire emailed to the first round participants. Each was asked to review the results of round one together with a colleague from their country. The new questionnaire evaluated the competencies and the domains they would be categorized as. In addition, reviewers were asked which frameworks they felt were most appropriate for the development of QI competencies for general practitioners. Responses were received from 12 reviewers from five countries: Ireland, Austria, Slovenia, Poland, and Hungary.

Several frameworks were recommended by reviewers. The prevailing frameworks were Crossing the Quality Chasm (Institute of Medicine, 2001) and The Bellagio Model (Schlette, et al, 2009), however Grol’s Development of Guidelines for General Practice Care (1993), the Donabedian model (1980), and the European Definition of GP Core Competencies (EURACT, 2005) were also cited. Recommended changes to both the domain and competency structures were incorporated. The six revised domains are Patient Care & Safety, Effectiveness & Efficiency, Equity & Ethical Practice, Methods & Tools, Leadership & Management, and Continuing Professional Education. The list of competencies within the domains were reviewed for appropriateness and clarity, and were produced 35 competencies organised within 6 domains.

In 2011, the revised list was reviewed and edited by a general practice expert from Maastricht University Medical Centre, department of Integrated Care.

The third and final round of review consisted of 2 Delphi consensus rounds which is a best-known, structured, and indirect method for the development of opinions. A finalised list of competencies was presented to members of EQUIP through a SurveyMonkey survey that permitted them to vote and comment on the domains, competencies, and their placement within the domains. With a few small revisions, a second survey was sent to the original respondents for a second consensus forming round. This survey presented participants with the specific edits that had been made, as well as the opportunity to agree or disagree with the full list of competencies as a whole. We sought a minimum of 10 respondents to this second Delphi round. We achieved 100% on the domains and on all but one competency.

This research allowed us to develop the following framework of QI competencies, which is presented in Figure 1.
**General Practitioner Quality Improvement Competencies**

**A. Patient Care & Safety**

1. Practice Patient-Centred\(^1\) medicine by understanding the patient’s experience and then reflecting on care.
2. Deal effectively with critical incidents and medical error.
3. Practice infection prevention and control.
4. Practice medication safety.
5. Apply a systems-based organisational approach to patient safety in the practice.
6. Incorporate effective communication to improve patient safety and involvement.
7. Provide appropriate disclosure to patients when errors occur.
8. Develop and Monitor individual health care plan with the patient.

**B. Effectiveness & Efficiency**

1. Standardise service delivery where possible to improve timeliness of primary care.
2. Measure practice performance & competence according to national and EU standards.
3. Implement evidence-based medicine guidelines.
4. Ensure data quality.
5. Managing resources efficiently in order to increase the efficiency of service delivery.
6. Promote methods of continuous improvement.
7. Standardise quality improvement efforts to make the process more efficient and sustainable.

\(^1\) Definition of patient-centred care: Providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions (IOM, 2001).
C. Equity & Ethical Practice

1. Analyse the equity of practice performance and take action when necessary.
2. Respect patient autonomy.
3. Respect patients' personal rights.
4. Manage all patient data safely and ethically.
5. Understand intercultural patient concerns.
6. Recognize, understand, and address ethical dilemmas.
7. Understand social contexts in general practice.
8. Prioritize quality improvement activity and understand its effect on patient care.

D. Methods & Tools

1. Understand and use the Plan-Do-Check-Act quality cycle.
2. Understand Change Management and the consequences of change in term of the Plan-Do-Check-Act cycle.
3. Measure performance and use data for improvement.
4. Understand and use measurements for accountability.
5. Use benchmarking feedback and audit techniques to measure and improve quality in the context of your practice or region.

E. Leadership & Management

1. Work in partnership with all stakeholders of the practice population.
2. Work as an interprofessional team in a practice, in a network, and in the community.
3. Understand how to take or delegate leadership for quality improvement.
4. Negotiate for change, with staff, and with clients.

F. Continuing Professional Development

1. Understand and use self-assessment.
2. Develop and maintain individual continuing learning.
3. Pursue systematic practice-based learning and improvement CPD.
4. Understand the gap between prevailing/current performance and local/national accepted standards.
5. Engage in interprofessional learning where appropriate.

Key messages

- The QI Framework can be used in identifying educational needs related to QI by GPs/FDs.
- The QI Framework can be used in benchmarking analysis while comparing the performance of primary care practices.

This may be easier for somatic diseases or chronic diseases than for mental diseases where there are special considerations. [Commentary, Inge Duimel, June 2011]
The QI model is an interdisciplinary and comprehensive tool which can support primary care practice.

The QI Framework can be used by the educational organizations in developing quality improvement education programs for primary care workers.

References

Chapter 7  Examples of Quality Improvement in General Practice/Family Medicine projects in European countries

Małgorzata Bala

Learning objectives:
✓ ability to list some examples of Quality Improvement in GP/FM projects in European countries
✓ ability to describe how patients can benefit from Quality Improvement projects
✓ ability to give examples of how the healthcare system can benefit from Quality Improvement projects

The aim of this chapter is to present some examples of successful quality improvement projects from a variety of European countries. The examples presented here illustrate how QI interventions can be applied in general practice (GP) at the practice level. Many other examples of QI projects exist for general practice and indeed for other areas of the healthcare system. The examples of quality improvement projects that follow were selected because they cover a range of areas like health promotion, prevention, treatment and combinations of different areas of GPs care (comprehensive care) and so they may motivate GPS to initiate or participate in similar QI projects in their countries.

Quality Improvement project in health promotion

Three level strategy was a community-based program led by GPs in Östringen, a community in Germany with about 12 900 inhabitants. The project was funded by the community and organizations involved included sports clubs, teachers, companies, schools, town administration, GPs and local health services. The project started in 1991 and is ongoing, without a specified end date. It was implemented in a CINDI (Countrywide Integrated Non-communicable Diseases Intervention) demonstration area. Since 1991 the program has performed regular health surveys in general practices and 22 patient education groups.

The aim of the program was to improve the cardiovascular (CV) risk, improve life style in the public and in the practice patients, improve the quality of care and the clinical performance and increase the accessibility and volume of health care. In primary prevention the project aimed to reduce hypertension, hypercholesterolemia, smoking and obesity.

The program strategy comprised of three levels. First level included activities by GP performed during normal consultation hours (lifestyle counseling and lifestyle changing measures). Patients who failed to meet agreed goals were referred to second level which included activities performed by GP with patient groups in the practice (for example a group of hypertensive patients). Third level of the program included activities performed by GP at community level which aimed to maintain success and prevent relapse. Different methods of counseling at first and second levels were used, such as brief intervention methods, the Five A’s group programs. All the third level courses included gymnasiun activities or jogging for at least 1 h a week as well as holistic counseling on nutrition, stress control, and medical advice.
Activities targeted at health professionals included education on intercommunication between the coordinative practice and other GPs. Also, a local working group was founded involving various citizens interested in health care: e.g. teachers, dieticians, and physicians and the town administration supported the activities by providing rooms for sports activities for groups from schools and local companies.

The effects of the program included decreased CV risk factors in the intervention area as compared with general population. Between 1992 and 1999 the prevalence of hypertension (\( \geq 160/95 \text{ mm Hg} \)) and smoking decreased while the prevalence of obesity (body mass index [BMI] >30) and cholesterol >250 mg/dl did not change significantly. It was reported that health promoting activities were practiced by all of the surveyed course participants and two thirds of practice patients. One fifths of the patients reported barriers to health promoting activities, which included lack of time or fatigue, shift work, obligations of caring for others, work factors, concomitant diseases, distance, children, or occupational stress.

**Quality Improvement project in cardiovascular disease prevention**

Diabetes Support Service (DSS) is run by a diagnostic centre (Diagnostisch Centrum Eindhoven, Netherlands), a supportive organization for the general practices and midwives in the region. The effects the intervention were evaluated after two phases of implementation as compared with delayed intervention in the control group (waiting list). The program started in 1999 and is an ongoing regional activity. It includes patients with diabetes mellitus (DM) documented for more than 4 years at the start of the study.

The aim of the program was to achieve better metabolic control in the diabetic patients. Intermediate aims were: improving the quality of care and clinical performance; cost containment or efficiency improvement; and logistic support in organizing the care.

The usual DM care in the Netherlands includes national guidelines with emphasis on non-medication-based management (lifestyle modifications) and prescribing of an oral antidiabetic agent only if lifestyle modifications were insufficient. Medication changes would be made in stepwise fashion on the basis of patients condition. Patients were treated in primary care unless complications occurred. DSS intervention consisted of logistic support for the GP. Interventions targeted at patients included providing information about the importance of the control system and the investigations done, group education for patient and their family members, arranging referrals to a dietician and help for glucose self-control and starting insulin therapy, calling patients for laboratory testing and other investigations (foot examination, fundus photography, blood test), asking patients to make an appointment in general practice to discuss results. The results of the requested tests were sent directly to the GP. The actions taken by the GPs after receiving the results were not part of the intervention.

Interventions targeted at general practice included quality control for glucose testing devices and advice about this devices, help in detecting patients with DM and registration of these patients, visit of diabetes consultant for help in diabetes care and treatment advice, feedback on practice level and on patient level.
In the second phase of the implementation the intervention involved adding practice nurse services at patient level (information and lifestyle advice during the quarterly checkups, tracing risk factors and setting short-term goals, motivating the patients to make lifestyle adjustments or adjusted medication) and practice level (surveillance of the control system – inclusion and follow-up of patients and supervision of the test ordering for each patient) (Figure 1).

Fig. 1 Practice nurse services applied in the QI projects’ implementation

The effects of the logistic support in the intervention group as compared with control groups included an increase in the percentage of patient who attended >=4 quarterly controls (with at least testing of fasting blood glucose or HbA1c), percentage of patients tested at least once a year regarding HbA1c, cholesterol, creatinine, blood pressure (BP), fundoscopy, foot examination, BMI, smoking status, but not fasting blood glucose and higher increase in the average number of tests. There was also better HbA1c control in the intervention group (it remained the same as compared with deterioration in the control group) and larger improvement in fasting blood glucose, systolic BP (but not diastolic BP), cholesterol level and triglyceride level.

When practice nurse services were added to the logistic support and compared with logistic support alone there were additional changes in the DM control, such as improvements of the HbA1c control, diastolic BP control, cholesterol/HDL ratio as well as more exercise. No significant differences between the groups were found with regard to systolic BP (deteriorated in both groups), cholesterol level (improved in both groups), BMI (deteriorated in both groups), percentage of smokers (increased in both groups), the prescribed daily dose for oral medication (increased in both groups) and the percentage of patients treated with statins (increased in both groups). The percentage of patients treated with insulin increased more in control (logistic support only) group.

Quality Improvement project in treatment

The Belgian Improvement Study on Oral Anticoagulation Therapy (BISOAT) aimed to improve the quality of oral anticoagulation management by GPs and to compare different models and interventions. In Belgium mainly GPs manage oral anticoagulation therapy. The BISOAT study
included GPs for whom one clinical determines the INRs on venous blood. Patients who were included in the study had to be treated with oral anticoagulation for at least 28 days. The quality of anticoagulation management was defined as the proportion of time that INR (international normalized ratio) values were within target range (within 0.5 and 0.75 INR-units from the chosen target INR of 2.5 or 3.5).

There were four groups compared within this study. All groups received education on oral anticoagulation, anticoagulation files (with summary of guidelines), and patient information booklets. Every 2 months, a newsletter informed the GPs on the study progress and requested them to send the anticoagulation files for control (control group).

Three intervention groups involved the following activities:

1. feedback on their anticoagulation performance every 2 months (compared to the entire group and to guidelines criteria);
2. determination of the INR with a CoaguChek device in the doctor’s office or at the patient’s home;
3. Dawn AC computer assisted advice for adapting oral anticoagulation.

INR was targeted at 2.5 for patients with AF, to prevent arterial thromboembolism, for deep venous thrombosis, or for pulmonary embolism and at 3.5 for patients with mechanical prosthetic heart valve and the antiphospholipid syndrome.

The risk factors for stroke and the occurrence of thromboembolic complications or bleedings were as follows: hypertension, DM, a prior stroke or transient ischaemic attack, peripheral vascular disease, congestive heart failure, previous myocardial infarction, a valve disease, history of malignancy and smoking. The patients were followed for a median of 4.8 months.

The GPs displayed very poor compliance with the computer generated advice. The implementation of the intervention resulted in a significant decrease in percent of patients with an INR >5 (there were differences between the three intervention groups) and a significant increase in the percentages of time within 0.5 INR-units from target (similar for all four groups). All four groups had similar number of tests per patient per month, per cent of patients with treatment changes or per cent of patients with at least one INR <2. The overall incidence of minor bleeding, major bleeding and thromboembolic events was similar in all groups.

The cost-effectiveness of the program was also calculated. The one-time cost of multifaceted education was € 49,997 for the whole study and €511 per GP practice and extra cost of €200 per GP per education session, €208 per GP-practice attendance fee and €45 for the patient education material. Monthly continuous costs per intervention ranged between €37 and €54 per patient. Using the CoaguChek in combination with the multifaceted education was associated with net savings and quality improvement. Sensitivity analyses also confirmed improved cost-effectiveness with extended duration and with increased program size.

The problems for implementation of the program in Belgium would be the lack of reimbursement for postgraduate education in Belgium.
Comprehensive Quality Improvement projects (combining different areas of GPs care)

In Germany the model for chronic care comprising of self-management, education, clinical information systems, decision support, optimal delivery design, supportive health care structures and access to community resources has been implemented by means of *disease management programmes (DMP)* in primary care, which are nationwide. The DMP in Diabetes Mellitus (DM) started in 2003 and the DMP Coronary Heart Disease (CHD) started in 2005. There is no specified end date.

DMPs are led by the Federal Ministry of Health and funded by the sickness funds. Proposals for new DMPs are generated by the Federal Joint Committee which includes representatives of the several organizations, such as The Federal Association of Statutory Health Insurance Physicians, the German Hospital Organization, The Federal Associations of Sickness Funds, and the Institute of Quality and Efficiency and Accredited Patient Organizations. These proposals have to be accredited by the Federal Insurance Office. The DMPs have a range of aims, including improving CV risk, improving lifestyle in patients, improving the quality of care, improving patient experiences, and lowering costs. The evaluation of the effect of the DM program was assessed in the ELSID study (evaluation study of the DMP diabetes mellitus type 2).

The intervention includes arranging contracts between sickness funds and primary care physicians using compulsory detailed requirements for patient care which need to be fulfilled to get a financial reimbursement.

Participation by doctors and patients in the DMP is voluntary. The content of the DMP is defined by a national expert group and its recommendations are compulsory for contracts. The DMPs include treatment standards, evidence-based guidelines, audit using quality indicators and quality assurance measures, quality circles, documentation standards, regular examination appointments, reminders, referral regulations, and physician feedback reports, educational meetings, outreach visits, patient education, shared individual goal setting by the patient and physician on the basis of individual circumstances and risk factors.

For example DM patients consultations are scheduled at 3- or 6-months intervals (with detailed physical examination) with agreements concerning further treatment, e.g. target values for HbA1c and BP and participation in patient education programs for DM or hypertension. Patients are offered lifestyle advice and are obliged to a follow up consultation at least twice a year and to attending an educational program. There are also financial incentives for patients. There is no specific continuing education for health care providers or practice support to enhance the uptake of DMP in primary care.

In patients participating in DMP as compared with those receiving routine care there was a decreased rate of deaths from all causes and a significant impact on the EQ-5D score (using the value set for the European population), also associated with the number of other conditions, and less problems for the dimensions of mobility, self-care and performing usual activities of EQ-5D questionnaire.

DMP patients as compared with those not in DMP received more frequent medical advice on diet and physical activity and medical examination of eyes and feet and cholesterol testing. They also
received more anti-diabetic drugs (oral +/- insulin), attended diabetes education classes more often, kept diabetes diaries and measured their own blood pressure more often. DMP patients achieved BP treatment goals more than those outside DMPs, but they did not achieve HbA1c and lipid treatment goals.

No significant differences were seen with regard to the frequency of HbA1c and proteinuria tests, blood pressure examination, antihypertensive, lipid lowering and antiplatelet medications.

In the overall assessment of diabetes care according to Diabetes Recognition Program 2009 performance criteria DMP care fulfilled 8 out of 11 (75/100 points) criteria while routine care fulfilled 6 criteria (50/100 points)

Patient Assessment of Chronic Illness Care (PACIC) is a tool to measure the quality of care according to the chronic care model (CCM) and patient motivation according to the “SA” principles (assess, advise, agree, assist, and arrange). When the care of DM patients was assessed by means of PACIC, significantly better patient-centred, structured, and collaborative care was observed for DMP as compared with non-DMP patients. The largest effects were seen for follow-up/coordination of care, goal setting/tailoring, and for the problem-solving/contextual scales and with the PACIC-SA scale – for assist, advise, and assess parameters.

In a study evaluating DMP implementation after 6 months using a quality management cycle (structured analysis of the current state followed by identification of the need for improvement, developing optimized workflow and targets) 90% of surveyed practices agreed on at least one target (for example to purchase new instrumentation, to regularly discuss feedback report or to set up a patient registry). On average practices formulated three targets and implemented two of them. In most practices lack of time was the reason for non-implementation.

According to the authors, sufficient resources (time, staff and money) are required to ensure efficient implementation of DMPs in primary care practices and their integration with routine processes.

**Factors necessary for successful Quality Improvement project**

In a recent systematic review the most effective interventions to improve DM care were complex and included 4 areas of care: changing of clinician behavior, changing the organization of practice, improving information systems and providing educational support for the patient (Figure 2).
In a review describing several quality improvement programs conducted in primary care in European countries several factors were identified as necessary for successful program. In most cases multifaceted interventions were found to be superior to single interventions. Additionally for health promotion programs the factors that seemed to be necessary for successful program included several factors which are presented in the Box 1.

**Success factors**

- quality
- quantity and intensity of the intervention
- brief structured advice
- continuously repeated advice
- easy access to stable local health courses
- GP familiarity with the individual problems and health resources
- the standardized way of measuring risk factors
- structured follow up sheets
- telephone follow-up
- enhancing the quality of the counseling component and simplifying it
- integrative approach to health promotion combining interventions directed as changing health behaviors of individuals and changing environment
- organization and policy

Box 1. Factors for successful QI programmes
For quality improvement programs in prevention the factors for successful program identified in included studies were as follows: using structured follow up sheets in the patient records, applying the patient-oriented interventions and logistic support with the monitoring of patients (recall system), structuring care by practice nurse and patient’s compliance with lifestyle changes as well as using a multiprofessional team from the planning and start of the program and teaming up the professionals to solve the practical problems experienced in their own working environment. Specifically for GPs, peer interactions, learning from each other by discussing feedback reports and guidelines as well as training the trainer approach were found to be useful in improving quality of care.

Regarding quality improvement programs in treatment also small group interactive learning, evidence based guidelines with attention for the specific needs of GPs, team building, newsletters, and patient oriented interventions were found to be important factors in improving quality of care, while financial incentives together with quality reports were relevant in improving the quality of drug prescribing.

For quality improvement projects combining different areas of GPs care, such as DMP in Germany, the factors important for the success of the program included restructuring of chronic disease care according to models such as the chronic care model and the medical home concept (the responsibility for individual care and coordination rests with medical providers working together within a healthcare team; patients receive more social support from their physician and doctor’s assistant) with the emphasis on the continuity and coordination of care. Other issues also important for the successful programs included financial incentives, clear goals and regularly audited guidelines, good teamwork and effective leadership, comparing the care with others, and using a combination of clinical and organizational approaches.

The factors that were described by the authors as being necessary for the program to be successful can be categorized into several groups, for example factors associated with health care personnel, healthcare organization and funding (payer), patients and local community and external environment.

**Key messages**

- Successful QI programs involve a variety of interventions.
- In the category of health promotion QI, key activities included education courses and lifestyle counseling.
- Key activities in prevention category of QI included computerized registration of risk factors, adherence to evidence based national guidelines, logistics support for GP and practice nurse, using structured assessment form.
- In QI programmes involving therapy, key activities included education, feedback, device, computer assisted advice and extra payments linked to the level of adherence to the guidelines.
• In German Disease Management Program, key QI activities included treatment standards, evidence-based guidelines, quality circles, documentation standards, regular examination appointments, reminders, referral regulations, and physician feedback reports, educational meetings, outreach visits, patient education and financial reimbursement.

• The factors described by the authors of the identified studies as necessary for the QI program to be successful included inter alia quality, quantity and intensity, multifaceted approach, multiprofessional team from the planning and start of the program, patient-oriented interventions and logistic support, audit and feedback, financial incentives, local ownership and learning, a combination of clinical and organisational approaches, clear goals, good teamwork and effective leadership, continuity and coordination of care, an integrative approach to health promotion.

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PART II Tools & Methods
Chapter 1  Quality Cycle as a basic method

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Learning objectives:
✓ understanding the quality cycle (PDCA) concept
✓ getting familiar with the steps in quality cycle, their purpose and content
✓ ability to participate actively in quality improvement project that uses cycle method in practice
✓ ability to plan a simple quality improvement activities in a small GP/FP’s practice
✓ getting familiar with several tools which may assist Quality Improvement in practice

Introduction

A quality cycle is the fundamental method which can be used for continuous improvement of care in family doctors’ practices. It has a scientific basis providing a structured approach for quality improvement using a methodology to guide both simple and complex problem-solving activities. It can be effective in everyday care for patients and also in managing a specific, simple or complicated project. The cycle may be used in small solo practices or group practices as well as in bigger primary care centres.

The quality cycle was introduced into medicine from the manufacturing sector of industry where it had proven effectiveness. Dr W.A. Stewart proposed the cycle methodology instead of the straight line of the old specification, production and inspection activities of production processes. W.E.Demming modified the cycle and proposed a four step process in 1950s. With some influence from other authors, a so-called PDCA cycle was created. It became popular in Japanese industry and then subsequently spread to other continents.

A PDCA cycle consists of four steps (1) Plan (setting objectives, analyzing problems, preparing an improvement plan); (2) Do (implementing changes); (3) Check (measuring the effect, comparing against the expected results); (4) Act (acting based on previous experiences, fixing changes). In 1980s Demming introduced new changes in this process and proposed a PDSA cycle, where “S” stand for “Study”. This was to emphasize that the purpose of the third phase in the cycle is to observe the effect, create new knowledge and summarise what was learned. After that the cycle was modified by several authors.

In medicine this concept was first implemented in the inpatients setting and secondary care clinics. Beginning in the Netherlands and spreading to other Western European countries it had become widely known in primary care in 1980s. Promoted by The European Association for Quality and Safety In General Practice (EQuiP) it has slowly expanded to Central and East European countries. Figure 1 illustrates the incorporation of the PDCA cycle concept into Family Medicine / General Practice.
Steps in the quality improvement cycle

As in other disciplines, in family medicine/general practice the original PDCA cycle and its phases/steps were adopted to specific conditions and demands at the primary health care level. In this chapter a cycle consisting of six steps/phases will be presented. These steps are: (1) Selecting topic; (2) Setting standard, (3) Assessing care, (4) Developing an improvement plan, (5) Implementing the plan, (6) Re-assessing care. The steps and their aims are presented in Figure 2.

Fig. 2 Steps in the quality cycle

In general, the first step represents preparation for the PDCA cycle. Steps 2, 3 and 4 correspond to the phase “Plan” of the previous models of the cycle. Implementation of an improvement plan stands for the step “Do” and re-assessment for the step “Check/Study”. “Act” starts with implementation of improvement plan and continues until the end of the cyclic activity. The cycle may be repeated several times for an activity if that is deemed appropriate.
Step I: Selecting a problem/topic

The fundamental step in the quality improvement cycle is to select a topic, or a problem, that needs improvement. Proper problem identification, clarification and analysis prior to subsequent steps is essential for the success of the whole cycle. Inappropriately chosen topics or inadequately defined problems can be the reason for failure and major disappointment.

**Brainstorming**

A group decision-making technique is used to generate a large number of ideas. It involves spontaneous contribution and allows each member of the group to present their ideas without being limited by particular rules. Participants should avoid criticism. A list of ideas is prepared.

This can be used in all phases of the quality cycle e.g. for topic or indicators selection, specifying a sample of patients, defining problems and barriers.

![Brainstorming](image)

Fig. 3 Brainstorming

**Identifying and prioritizing problems/topics**

There are numerous topics and issues in daily family practice that could be a subject for the quality improvement cycle. Before any specific one is selected for further work, its characteristics should be considered under the following headings:

**Relevance.** The selected topic should be practical, pertaining to an important and a real area of daily practice. It should be related to the clinical or organizational challenges met by physicians or other members of primary care team.

**Patient-oriented.** The chosen topic should be important from the patients’ perspective. It should have a real impact on provision of health care or its outcomes. Preferably it should increase accessibility of the services, or improve clinical outcomes and patient’s satisfaction.

**Frequency.** The chosen problem should be a regular phenomenon. This guarantees that relatively large number of patients will benefit from any introduced changes and improvements.
Prioritization matrix

A useful tool to achieve consensus and prioritize unclear issues. It helps to rank problems or issues by important criteria and helps to show which problem is the most critical.

During a group brainstorming session problems are identified and listed in the first column of a table. In the next columns criteria which fit to the situation are put. The importance of each criterion compared to other may be agreed and then numeric weightings are added (e.g. “2” means twice as important as “1”). The group evaluates how well a particular problem/issue meets each of the criteria. The item is scored against each of criteria, then scores for each item are summed. If the numbers are allocated to particular criteria each score should be multiplied by the number. A final list of prioritized items is developed and may be used for decision making in different steps of the quality cycle.

Defining/clarifying a selected problem

A selected topic must be not only important, but also well-defined and suitable for a further work. From that perspective its measurability and solvability should be judged.

**Measurability.** This means that a selected problem can be defined using well-defined methods or instruments. Moreover these methods should be easily available at the practice level. Clearly defined indicators related to the problem should be available.

**Solvability.** This means that a selected problem can have practical options as solutions, that change is possible and that there are real possibilities of the implementation of changes. While there could be many interesting, patient-oriented, and important topics for the PDSA cycle, sometimes there is no practical possibility of improvement due to complexity or barriers or lack of resources, for example. It is therefore important to choose a topic which is appropriate for primary care and the practice.

Analyzing the problem

Initial analysis of the selected problem should include review of the existing evidence related to the subject as well as its influence on cost-effectiveness of care.

**Evidence-based.** Selected topics and proposed changes should preferably be supported by published data and based on scientific evidence e.g. prospective cohort studies that show the effect of proposed changes. Review of literature is always recommended as a first step. In the case of lack of
such research, propositions could be based on expert opinion. It should be noted however, that the opinion of experts, especially in case of specialists from outside the primary care environment might impact on feasibility.

Cost-effectiveness. The selected problem should justify the extended time and resources that are going to be spent on its improvement. Although costs involved in patient care should not be the sole subject of quality cycle, they must be taken into consideration for practical purposes. In other words, we need to know whether a potential solution to the chosen problem would be affordable from patient, practice and health care system point of view.

Cause and effect diagram (Fishbone, Ishikawa diagram, root cause analysis):

A graphical tool used to illustrate the different causes and sub-causes that contribute significantly to the issue/problem being examined (effect). It also illustrates the relationships of various factors influencing an effect.

It is especially useful for problem analysis as well as for identification of barriers.

Step II: Setting standards

The next step in the cycle is selection of standards, against which the current and improved practice will be assessed. This should be done through careful selection of indicators, definition of criteria and achievable standards. This step enables assessment of medical services. Generally speaking these elements are the basis for defining appropriate patient care and are reference points by which physician’s and entire medical personnel’s actions are measured by.

Selecting indicators

To define quality of care it is necessary to use appropriate tools. Each selected topic is composed of large number of elements, but only a few of them are suitable for measurement and can be used in assessment. These particular elements of care used for this purpose are called indicators. Appropriate indicator should have several characteristics. (1) It should be definable and measurable. (2) It should refer to a specific dimension of care, and (3) it should pertain to quality of care.
Definable and measurable. This means that there are methods, procedures, or tools at the disposal of the practice team members by which they are able to quantify the indicator and assess its value. The measuring instruments utilized in quality assessment of medical services should have certain required features. These are: relevance (this means that tools used are in clear association with quality and results of care), reliability (this refers to probability of obtaining the same results by different operators using the same instrument being significantly higher than obtaining such results by chance alone), differentiation (this means that utilization of a given instrument or method allows to differentiate between good and bad care).

Dimension of care. There are neither indicators nor systems of quality assessment that are able to define the quality of care in a global or holistic manner. According to classic concepts formulated by the founding father of quality assessment in health care, Avedis Donabedian (1919-2000), health care can be assessed in reference to its three elements: structure, process and outcome. For each of the three dimensions of care specific indicators could be defined.

Quality of care. Indicators should be selected in such a manner as to encompass relevant mixture of elements of structure, process and outcomes of care. By careful selection of different indicators we have a chance to judge overall quality of care. Such an approach not always is feasible and if necessary, a limited set of indicators, related to only one or two dimensions could be used as well.

Defining criteria

Indicators define these elements of care, which are subject to evaluation. However, they do they provide us with reference points that are satisfactory and sufficient for assessment. Donabedian suggests that an indicator should be defined with such precision as to allow for its assessment by simple “yes” and “no” answers. Indicators that have these properties are referred to as criteria. To better illustrate this concept it might be useful to follow an example of a patient with hypertension. In judging the quality of care diastolic blood pressure can be used as an indicator. If we precisely define the desired numeric value limit then we will be able to treat this indicator as our criterion of care. In other words, diastolic blood pressure below 90 mmHg could be used as one of our criteria. “Yes” or “no” answer is one of the characteristics of a criterion. Criteria should refer to the selected population; they should be simple, clear, and objective. There are many ways of obtaining information that could facilitate formulation of criteria. These can be defined by experts or specialist groups (external criteria), i.e. formal guidelines, or directly by members of the team involved in quality cycle (internal criteria). This can be especially useful when there is limited number of reliable external resources (evidence) in regards to a given subject.

Specifying standards

When criteria are defined and accepted, it should be decided how they should be met in real practice, for example what part of the patient population should fulfill them. In this way a standard is set. A standard is a precise, quantified specification of, and is relevant to a given criterion. Using a
previous example, we can consider the following statement as a standard: 60% of all patients with hypertension should reach diastolic blood pressure equal to or lower than 90 mmHg.

Standards define a level of care which could be further described as ideal, optimal, average, minimal or unacceptable. Minimal norms, although perhaps easily reachable, provide for only minimal level of care. Accepting such standards does not motivate members of the team and in well-functioning clinics could even lead to decreasing quality of care. On the other hand, in some circumstances only this level of improvement is realistic and higher standards, although theoretically more stimulating, may not be attainable. It is therefore very important to select goals that are not beyond reach or impossible to achieve, as this may discourage the medical team and lead to failure. Setting intermediate goals is another good method of stimulating improvement. For example improving standards by 10% at intervals of, for example, every 3 or 6 months can often be a realistic and motivating roadmap for achieving higher standards of care.

**Step III: Assessing current care**

After setting standards for chosen problems the next step is to assess existing care against these standards. In this process five stages can be differentiated: (1) definition of a subject, (2) specification of a sample, (3) data collection and (4) analysis, (5) drawing conclusions.

**Defining a subject**

First the practice team should define precisely what will be a subject of data collection and analysis. In other words they have to choose appropriate source of information. Valid and useful information can be derived from various sources e.g. practice team members, financial data or other managerial data. Most often, especially in case of patient oriented quality cycle, patients themselves or sometimes their medical charts provide essential information about the quality of care. It is unlikely that all practice patients can benefit from quality improvement in one chosen topic. So, data for the assessment of current care should be derived from the specific patient group. In other words, the selected population must refer to all patients included in the assessment. Usually populations can be characterized as based on, age, gender, diagnosis, socio-economic status, using a particular medication or a combination of any of these features.

**Specifying a sample**

Ideally, 100% of records with certain characteristics, or all patients belonging to the selected population should be examined. This is often unfeasible or even unmanageable due to the population size. Moreover such efforts are not needed to draw valid conclusions, which can be made reliably after assessment of a sample of this population. It is important to select a relatively small and feasible group which should be representative of the target population.
Random sampling. In scientific terms random sampling is the best method of sample selection where each element or member of the population has equal chances of being selected. This however might be technically difficult due to the necessity of preparation of complete list of patients that is a sample frame, application of specific randomization tools, etc., what makes this method quite time and resource consuming. Thus, although preferred in clinical research (but even there not always applied), it often does not find its use in quality assessment cycles. However it is often practical when used for practice based research, for example a study sample of all smokers in a practice might be onerous but a study involving all smokers who use the contraceptive pill might be entirely feasible.

Systematic sampling. It is an easier and less time consuming method. Execution of this method is based on selection of elements from an ordered sampling frame. It relies on arranging the target elements according to a set ordering scheme and selecting them at regular intervals through that ordered list. For example let’s assume we want to sample 10% of our target population, we could arrange patient’s records in alphabetical fashion, we randomly select one chart from the first ten, and then select every tenth chart for our review. Analysis of data obtained this way can however potentially contain some important errors. Records are rarely kept in a randomized fashion. When they are arranged alphabetically, entire groups (e.g. family records) could be clumped together. When they are arranged in other manner (e.g. by place of residence, street name etc.), socio-economic and cultural factors could confound collected data and results.

Stratified sampling. It relies on division of the population into several distinct categories considered as separate "strata." Each of these groups have individual elements that are randomly selected to be elements of the sample. This method allows showing implications for specific subgroups that may be lost in a more generalized random sample. For example if a team wants to have a sample with good representation of all patients with chronic diseases, we can randomly sample certain number of them from all the registers of patients with different chronic diseases (e.g. diabetes mellitus, hypertension, etc.). This method improves accuracy of the estimation and focuses on the importance of different subgroups of elements. It is not useful when homogenous subgroups cannot be identified. Sometimes it is difficult and expensive, but in other circumstances might be more convenient and demanding less efforts and resources.

Probability proportional to size sampling. This is a variation of stratified sampling taking into consideration size of different subgroups. Chance to be part of the study sample is proportional to the size of the subgroup. This method improves accuracy by focusing on more frequent elements having a greater impact on the whole population. For example if we want to measure patients’ satisfaction, we might include proportionally more hypertensive then heart failure patients.

Cluster sampling. In this method elements of the sample are chosen within groups, which are often clustered by geography. This method might be more useful for a larger scale quality assurance projects. For example, if surveying patients' opinion within a country, we might choose to select 10 practices within each region and then interview patients only within the selected practices. Not all patients would be interviewed, but only a sample of them within each of 10 selected practices. This reflects multistage sampling, which is commonly applied in this method. Cluster sampling saves costs and effort, but still can produce representative results.
Accidental sampling. This method is often also called convenience or opportunity sampling. In this method only these elements are included which are easily available. Normally it is not a representative sample and the results of the tests performed on such a sample are not conducive to making scientifically sound generalizations. For example if we interview the patients waiting for the consultation or leaving the office after it, we will get opinion of those who actually use services. This opinion doesn’t reflect opinion of all practice patients (as in patients assigned to or belonging to a certain practice), because the point of view of those who do not use the services provided is not taken into consideration. They might be more critical, healthier or have other characteristics, which make them different from the majority of practice population. This method, although not fully representative from the scientific point of view is quite useful for quality improvement projects. It might be especially advantageous as QI projects may more often focus on actual users of care than on whole populations.

Sample size. A second challenge in specifying the sample is to define its size. There are special formulas, tables, and power function charts to determine proper sample size for scientific purposes. Again, such a rigorous regime is usually not required for quality improvement projects. There are several methods that can help define appropriate sample size, from complicated statistical calculations to easy rules. Consider these basic rules:

- If the target population is small, let’s say 20 to 40 cases, then for the assessment to be valid, all cases should be sampled.
- Independent from the size of the population, larger populations require larger sample size.
- 20% sample from a given population will be often sufficient, i.e. if there are 250 records, selection of 50 is enough.

In the process of quality improvement, it is better to review even small number of cases than dwell on the appropriate sample size. When interventions become more complicated, then sample size becomes truly significant and it might be one of the main obstacles preventing successful completion of the project. For the practical reasons it is also possible to start with incremental sampling, that is to begin with a small sample size and then move on to a larger one to confirm the findings.

Collecting data

Data collection method for PDCA cycle should be feasible and reliable. It is important to design such a method, which would not interfere with our routine practice, especially when no special resources are available for the purpose of quality improvement. Certain tools such as electronic or paper data entry forms might be helpful. Within each turn of the cycle the data will be collected at least twice, before and after implementation of the improvement plan. It is extremely important to collect the data using exactly the same method in the same circumstances (e.g. period of a year, day of a week or time of a day). This is a precondition for reliable demonstration of quality improvement achieved within the cycle.
Check list

A checklist is a form of data collection, consisting of items/categories. When item is present than a check is put beside of each item. It is used to facilitate the collection and analysis of data.

Analyzing data

Data analysis can usually be done with the use of relatively simple statistical methods. Frequency distribution, median and mean value with standard deviation usually can be easily calculated without any help of professional statisticians. However for big scale projects, requiring assessment of large and complex data such professional assistance might be helpful.

Scatter plot

A type of diagram that display the type of relationship (so called correlation) between two variables. The data is presented as points (dots), which have value on vertical and horizontal axis.

Identified correlation may be positive (the pattern of points rises from lower left to upper right) negative (the pattern falling in the same direction) or null (variables uncorrelated). The plot may also include a trend line.

Used in analysis and presentation of data.

Drawing conclusions

Results of the data analysis should be presented in an understandable and effective manner to all members of the team. Inclusion of graphs, tables, and diagrams to illustrate the results is highly
recommended. This can again be easily achieved using available simple computer software. The next step is to compare the results with standards of care. If set standards were reached, the cycle can be concluded. If not, a team should redesign the improvement plan. Results of each data analysis should be discussed with all staff members involved in the quality cycle, as exchange of opinions might help to reflect on different aspects of care.

**Frequency diagram**

There are different visual graphs showing an impression about frequency of the observation.

Bar graphs and histograms employ rectangles, which represents some classes or categories. These categories are plotted on the horizontal axis, and the number of times they occur (or the percentages of their occurrences) are presented on the vertical axis. Bar graphs are used to show data that fits into categories and the bars are usually separated. Histograms are used to present continuous data and the bars are adjusted. The same data may be presented in a circle graph. Moreover, the number of times something occurs may be shown in a table. Used to present data in different steps of a quality cycle.

![Fig. 8 Percentage of diabetic patients with particular blood pressure level](image)

![Fig. 9 Percentage of hypertensive patients receiving particular type of medication in monotherapy](image)

**Step IV: Developing an improvement plan**

The quality cycle involves a planned-change approach to achieve success. In order to introduce changes there is need to establish a plan or a roadmap that will guide practice team through the process of improvement. Such a plan should be multistep, clear and easy to understand. It should have an attractive format and include description of all proposed changes.

In small practices the best solution is to encourage each team member to be involved in preparation of a plan. Assessing and commenting should be an integral part of the planning process. It could happen that a plan perfectly understood by a physician could be completely enigmatic for the rest of
the team. When the plan is prepared in a written form, it is paramount to obtain opinion regarding the entire plan from each member of the team. Feedback related to their individual roles is especially important. Opinions expressed by the team members should be considered as relevant. A plan introducing a mistake is worse than having no plan at all.

**Improvement Plan**

Generally an improvement plan should include the aim, which will be achieved, list the actions that will be undertaken with specification by whom, when and how. A similar structure is required both in clinical (i.e. management of hypertensive patients) as well as organizational projects (i.e. appointment waiting time). Below is presented a framework for a simple improvement plan, which can be used in a small FP/GP’s practice and might be prepared by the practice team without major external support (see Table 1).

For larger health care organizations a more complex plan which may include description of vision, mission and strategies may be required which would include a specification of short and long-term goals, particular phases and activities. Such plans might be prepared to be in place for many years. There may also be a need to establish specific QI teams with particular tasks. Sophisticated and comprehensive plans, using EBM methodology, are designed by experts over several months and may be quite expensive.

Table 1. Framework of an improvement plan.

<table>
<thead>
<tr>
<th>Part</th>
<th>Activities</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| 1 Aim | – Go to step II of the cycle (standard setting)  
– Write a standard down  
– Clarify terms which may be unfamiliar | Clearly state the aim of the plan, which is the very same as a standard of the cycle |
| 2 Barriers/obstacles | – List barriers/obstacles  
– Define them  
– Group them when possible  
– Consider which are the most important  
– Choose barriers for elimination | Comprehensively identify barriers/obstacles/factors that may limit achievement of the aim (standard) |
| 3 Intervention | – Explore alternatives to break the barriers  
– Identify interventions for each barrier/obstacle  
– Define range and components of the intervention  
– Consider applicability in the practice  
– Decide which interventions is implemented | Carefully select reliable intervention(s)/activities that will lead to improvement |
| 4 Person responsibilities | – Nominate a member of staff who coordinates and monitors the activities  
– Identify one member of staff responsible for steering each intervention  
– Dedicate others to the interventions  
– Clarify tasks of each person involved | Precisely define roles of team members in carrying out improvement activities |
| 5 Timeline | – State the start date  
– Arrange intervention/activities/events chronologically  
– Define duration of each activity  
– State the end date and time of re-assessment (next phase of a cycle) | Prepare a detailed program that shows order and duration of activities |
| Resources | - Assess resources needed for each intervention/activity  
- Consider they availability  
- Design effective use of resources | Realistically estimate resources needed (many, people, material, equipment, space, information etc.) |
| Intermediate assessment | - Specify how the progress in particular activities is controlled  
- Decide who gets feedback and how often | Exactly design how the realization of improvements will be monitored |

Affinity diagram

A group decision-making method which helps in sorting a large number of ideas; data or concept generated during a group meeting. All ideas are recorded on separate, small cards or sheets of paper and then grouped into similar categories. Each category should consist of naturally related ideas. A logical heading of the category is created at the end of the discussion.

It can be used for resources or intervention planning as well as for identification of barriers. Moreover it is valuable for problem analysis in different steps of a cycle.

Flow chart (run chart)

A pictorial representation of the process, which helps visualize and understand it. It can be used to show how the actual process operate and in such a way assist in identification of illogicality. The steps (small boxes) are presented in sequence and dependency relationship. Flow directions are represented by arrows and decision points by diamonds. The beginning and ending steps are presented in ovals.

It might be used for analyzing of existing processes as well as planning new ones.
**Pareto diagram**

A bar chart used to arrange information in such a way that the causes of the problems/errors, showed as bars, are arranged in decreasing order, from left (largest) to right (smallest). It highlights the vital causes among existing many and helps focus efforts on the most important ones. Pareto principle states that roughly 80% of the effects come from 20% of the causes.

The left-hand vertical axis represents the unit of comparison and the right-hand axis cumulative percentage. The horizontal axis represents the categories (e.g. causes of a problem). It is possible to include also a line graph, which shows the cumulative percent of categories. It starts at the left right-corner of a diagram and is calculated by adding percent of a category to the percentages that come from previous categories.

It is especially useful for identification of barriers in planning improvements.

![Pareto diagram example](image)

**Fig. 12 Barriers for achievement of target blood pressure level in patients with hypertension**

**Step V: Implementing an improvement plan**

Once the plan has been completed the most difficult part of the quality cycle is making the necessary changes. To achieve success, it is necessary to take into account several points from which a few are really important. Generally, the bigger the changes the harder it is to implement them.

**Implementing changes/improvements**

Minor changes, with only small disruption on existing processes or habits can be made quickly and easily. Large scale changes, which are time consuming and affect everyone in a practice, will be complex and hard to deal with. To support their implementation in big organizations such as primary health care centres or group practices the principles from several theories of change may be used. In small practices some general advice ought to be followed.

It is necessary to take into account that practice team members are most likely to be crucial supporters or barriers for implementation of changes. So gaining commitment of people and engaging them is vital and increases the likelihood of success. A team should be motivated to want to make changes. Practice leader should take into account that each staff member can react to changes in different ways. A leader ought to be aware that resistance is very often a natural human response.
to changes. Moreover implementation of a plan can bring different emotions, not only acceptance or enthusiasm but also frustration, anxiety or even anger.

Carrying out the plan

After a plan is implemented, actually carrying it out will depend on the actions of involved staff. Maintenance of willingness to improve care and getting everyone involved will be just some of the pressing challenges for the practice leader. Effective communications, regularly updated information, willingness to listen and respond to team members are essential factors, which improve achievement of success. Moreover, attention should be given to reliable patterns and work habits that already exist in the practice in other areas. One example may be punctuality and teamwork. When regular meetings devoted to QI are organized they should start and end on time. Furthermore, each team member should attend these meetings.

Checking/supervising continuously

Without behavioral changes there will be no change. Often excellent ideas are presented that are initially accepted by everyone, they begin to be implemented, but ultimately people revert to their old ways. It is therefore important, especially in the transition period, that progress is continuously supervised and monitored.

Run chart (control charts)

A graphic tool used to show a change in a certain value over a period of time.

It helps analyze process performance and shows upward and downward trends. Horizontal axis is labeled with the unit of time and vertical axis with the data (past and current with a place for future data). Neighboring points of data are joined. It is also possible to indicate central tendency (mean, median) in the chart.

It may be used to track improvements in a practice. Fig. 13 Achievements of BP targets in patients with hypertension

Keeping check during the process / ongoing adaptation

Carrying out the improvement plan is important, but the practice team should always be prepared to adapt the plan when analysis shows it to be necessary. Some problems can be anticipated and prevented while most of the others should be identified in the early phase and corrective actions introduced quickly. Some factors may move the process forward and they should be empowered. On
the other hand, restraining forces should be made visible and eliminated. A corrective action is essential when patients are unintentionally harmed.

*Record keeping and documenting issues*

Continuous record keeping is necessary for the next phase of a quality cycle - re-assessment of care. It is possible that while carrying out the improvement plan some unintended consequences of the changes will appear. Such problems should be documented and kept in mind when decisions about continuation of quality improvement activities are undertaken.

**Step VI: Re-assessing care**

Re-assessment is an important step in quality improvement cycle, as it is a confirmation of made improvements or failure in achievement of a set standard.

*Collecting data after improvements*

Data collection during the re-assessment phase ought to be performed sometime after changes were introduced. The exact period of time allowed for changes to mature is dependent on the selected topic. If introducing changes requires a significant amount of time, reassessment would be proper after 6-12 months. There are cases however, where immediate re-assessment is preferred.

In this phase of a cycle the same methodology of data collection as in the third phase of a cycle (assessment of existing care) should be implemented. This means that methods of patient selection, sample size, indicators, measuring tools and techniques should be consistent and not be changed.

*Analyzing data*

In the process of re-assessment it is important to employ exactly the same criteria that were used at the beginning of the cycle (step III). It allows for clear comparisons of the level of care before and after an improvement phase.

*Preparing information*

Aggregated information about the results achieved after improvements should be prepared in a form that each member of the practice team will understand. The best way to visualize it is through utilization of different types of graphs, diagrams or tables. In this phase of the quality cycle the presentation of results should include not only the data from the re-assessment phase (step VI) but also comparison with the data from assessment phase (step 3).
Identifying what was learned

This is an opportunity to look back at the entire process and identify important experiences. Discussion or debate devoted to this issue should be encouraged. All members of the team should look at the results of their activities with constructive criticism. Not only advantages but also limitations and drawbacks of the improvement process should be analyzed. While reflecting and evaluating the whole processes it is useful to link the specific actions of the improvement plan with the appropriate results.

Concluding

In this stage a conclusion is reached as to what were the overall results of the quality cycle. The most important and interesting is a conclusion as to whether the set standards were achieved, overcompensated (rarely), or only partially accomplished (more often). Based on this conclusion, future projects to be undertaken by the practice team can be discussed.

Continuing QI in practice

There is no single and correct approach which can be implemented at the end phase of the quality cycle. This method is most appropriate for continuous development in FP/GPs' practices. If improvement was achieved changes should be institutionalized and standardized. In other words, they ought to become a part of routine practice so that deviations, when they appear, are picked up. If there is no improvement of patients' care other solutions should be tried. The greatest danger of failure in a quality cycle is not getting started or stopping just after the re-assessment phase when none or only a little improvement was made.

Continuing

Even if set standards and goals were reached, important projects should remain in the process of continuation. The quality improvement cycle involves cyclic action and in such a way gives opportunity for being repeated again and again and raising the level of care each time, or try to attain a standard in a different way if it was unsuccessful or partially achieved on a previous occasion. In such a situation the practice team needs constant stimulation. New approaches and ideas should be developed in order to keep the cycle vital. The cycle can be continued until room for further improvement is exhausted.

Adapting/Verifying

If the goals were not met and there is still possibility for further improvement, a project can't be assumed to be finished. It should be an impulse for re-entry into the cycle where the team can adapt the improvement plan. Most probably it will require a different strategy, identification of real
barriers which were not revealed previously and designing more effective interventions. There is also a chance to analyze the standards. They might have been set at a level too high to be achieved, especially in the short term and by an inexperienced team.

Abandoning (closing)

For the majority of projects, limitations such as time and resources, necessitate stopping them. Moreover, forces outside the practice (e.g. new legal regulation, changes in sources of funding, different expectations of patients) may also influence decision about continuation or abandonment of particular activities. A demand for a cycle related to new topic might also surface. Nonetheless, in the situation when the quality cycle is abandoned it is well worth reflecting on what had been learned from the processes and results of the past activities.

Planning for the future

Procedures or processes that have significant impact on patient care should be reviewed regularly and systematically. If a team decides to abandon improvement related to one topic at least periodic monitoring (e.g. in every two or three years) should be considered to confirm or verify stability of improvement. It is especially important when the team expects that obtained results are not permanent or problems in practice are not fully resolved.

Spreading results

A successful QI cycle may be a reason to celebrate achievements in the practice and should be the basis for spreading the results. Good examples can popularize the value of the PDSA cycle and allow for replication in other practices. Interested physicians can learn valuable lessons whether or not the changes implemented in the particular practice resulted in the improvement of care, what was optimal sequence of actions, what were the difficulties.

Spreading the experiences from quality cycles may be relatively easy during local doctors meetings or through Internet forums or websites. It requires more effort to make a presentation for FP/GPs congresses or conferences. Publication in national and international journal may be a challenging option, and not easy for the practicing and busy physicians, but it may give additional satisfaction.

It should be highlighted that local or regional health authorities should support dissemination of information about QI activity in practices. Moreover, associations and colleges of FP/GPs. should be also involved. Good examples of innovation in one practice can be multiplied and lead to improvement of primary care on local level. The mass media can disseminate information about QI achievements in FP/GPs practices and in such a way build a positive image of family medicine/general practice.
Key messages

- Continuous quality improvement based on a quality cycle has already proved to improve patient care not only in hospitals and other large healthcare organization but also in small, single handed practices of FP/GPs.
- FP/GPs should understand the general concept and principals of a quality cycle and should be able to plan simple improvements and participate in more complex projects.
- Professional organizations of FP/GPs and local or regional health care authorities should be involved in promotion and facilitation of the quality improvement activities undertaken by practice teams on primary health care level.

References

Chapter 2  Other methods and tools

Klas Winell

Learning objectives:

- ability to describe other methods and tools for QI in practice (e.g. peer review groups; patient satisfaction measurement; medical records; guidelines development and implementation; accreditation)
- ability to provide some project examples to each method

Content

Example of a tool – self assessment of learning needs

Self assessment of own learning needs, gaps in knowledge and skills deficiencies V attending local or national learning activities to accumulate attendance points.

Key messages

References

Glossary of terms
Chapter 3  Patient Safety

Maciek Godycki-Ćwirko

Learning objectives:

✓ understanding the complexity of the patient safety issue in the QI process
✓ ability to describe the main success factors of patient safety improvement projects

The issue of quality of care is complex as it is related to the complexity inherent in health care with its inefficient and variable processes, changing case mix of patients, health insurance and payment systems, differences in health professionals’ education and experience and numerous other factors. On the other hand quality of care aims to be effective, safe, patient-centred, timely, efficient, and equitable.

Quality in such a complex health care can be defined as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”.

Part of health care quality is patient safety. Patient safety itself can be defined in several ways. The American Institute of Medicine in its 1999 “To Err is Human” report said it was: “freedom from accidental injury; ensuring patient safety involves the establishment of operational systems and processes that minimize the likelihood of errors and maximize the likelihood of intercepting them when they occur”; while according to the National Patient Safety Foundation it was “the avoidance, prevention, and amelioration of adverse outcomes or injuries stemming from the processes of health care”. These events include errors, deviations and accidents. The Council of Europe in 2005 defined patient safety as “freedom from accidental injuries during the course of medical care; activities to avoid, prevent, or correct adverse outcomes which may result from the delivery of health care” and the World Health Organization in 2007 as “a freedom, for a patient, from unnecessary harm or potential harm associated with healthcare”.

In primary care practice, patient safety has developed to be primarily associated with the reporting of incidents, medication safety and the prevention of infection. Compared with hospital care primary care is relatively safe, however adverse incidents do occur in general practice as well and the occurrence of patient safety incidents there has been estimated between 5 and 80 times per 100 000 consultations.

Quality improvement process in the clinical context can be perceived as a combination of evidence-based clinical guidelines, care pathways and clinical governance structures. Between the challenges of patient safety in family medicine are: evaluation of safety practices and getting guidelines into practice where the maturity of the safety culture plays a vital role. The evaluation process should cover prevalence and severity of the problem targeted by the practice, the current utilization of the practice, evidence on efficacy and/or effectiveness of the practice, the practice’s potential for harm, data on cost if available and implementation issues.

To measure attitudes and practice with regard to patient safety Manchester Patient Safety Framework (MaPSaF) has been developed with the five levels of cultural maturity (Figure 1).
If one concentrates on medical errors, the evidence tells us that the majority of errors result from faulty systems and processes, not individuals, so it is reasonable to look for process improvement techniques to identify inefficiencies, ineffective care and preventable errors, and then influence changes related to systems. It involves assessing performance, using findings to inform change and targeting the aims of effectiveness and safety through process-of-care measures, checking whether providers of health care perform processes that have been demonstrated to achieve the desired aims, as well as avoid those processes that are predisposed toward harm.

The challenge is to determine the effects of health care on desired outcomes and to assess the degree to which health care adheres to processes based on scientific evidence or agreed to by professional consensus, and is consistent with patient preferences.

The Agency for Healthcare Research and Quality (AHRQ), the National Quality Forum, the Joint Commission in United States, and many other national organizations endorse the use of valid and reliable measures of quality and patient safety to improve health care. Some of these measures that can be applied to the different settings of care and care processes can be found at AHRQ’s National Quality Measures Clearinghouse Web site and the National Quality Forum’s Web site. These measures are generally developed through an assessment of the scientific strength of the evidence found in peer-reviewed literature, evaluating the validity and reliability of the measures and sources of data, determining how best to use the measure and actually testing the measure.

Comparative data are available from national organizations, such as AHRQ’s annual National Health Care Quality Report and National Healthcare Disparities Report.
There are many patient safety improvement factors and strategies (Table 1) however their implementation face a series of requirements.

Table 1. Examples of patient safety improvement factors and strategies

<table>
<thead>
<tr>
<th>Patient safety improvement factors and strategies</th>
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<tbody>
<tr>
<td>Stakeholders involvement</td>
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<tr>
<td>Substantial and strong leadership support</td>
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<tr>
<td>Involvement and consistent commitment</td>
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<td>Visibility both in writing and physically</td>
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<tr>
<td>Adequate financial resources</td>
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<tr>
<td>Time to be actively involved and to enable projects to work</td>
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<tr>
<td>Setting safety as an organizational priority and reinforce expectations</td>
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<tr>
<td>Motivated and empowered teams</td>
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<tr>
<td>Protocols adapted to the patient’s needs</td>
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<tr>
<td>Education and training of staff</td>
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<td>Leadership about the current problem</td>
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<tr>
<td>Quality improvement tools</td>
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<tr>
<td>Planned change in practice intervention</td>
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<td>Updates as the safety project progressed</td>
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</tbody>
</table>

The process of patient safety improvement needed to engage and involve all stakeholders includes increasing their understanding that investment of resources in quality improvement can be recouped with gains in efficiency and fewer adverse events. Stakeholders can prioritize which safe practices to target; to develop solutions to the problems that require addressing fundamental issues of interdisciplinary communication and teamwork and to build upon the success of other organisations.

In making significant changes substantial and strong leadership support is needed, then involvement and consistent commitment to patient safety and continuous quality improvement, and visibility both in writing and physically.

The inevitability of resource demands associated with changing processes require senior leadership: to ensure adequate financial resources by identifying sources of funds for training and purchasing and testing innovative technologies and equipment; to facilitate and enable key players to have the needed time to be actively involved in the change processes, providing administrative support; to support a time-consuming project by granting enough time for it to work; and finally to emphasize safety as an organizational priority and reinforce expectations.

Even with strong and committed leadership, some people within the organization may be hesitant to participate in patient safety efforts because of various system factors, a lack of organization-wide commitment, poor organizational relationships, and ineffective communication. These barriers are not so significant in organizations which recognise the need for change, change the culture to enable change, and actively pursue institutionalizing a culture of safety improvement.

The success of these strategies is dependent upon having motivated and empowered teams, comprised of the right people, included peers, engaged all of the right stakeholders (from senior managers to frontline staff), and are supported by senior-level management. Other factors to
improvement success are implementing protocols adapted to the patient’s needs and to each unit, based on experience, training, and culture.

Teamwork and group work has been seen as difficult and time consuming, which delays a consensus on actions. Team members need to learn how to work with a group and deal with group dynamics.

One of the risks to progress in improving patient safety seems to be the lack of patient and public involvement, however evidence to support interventions that promote patient involvement in improving safety is limited.

There are specific challenges of improving the safety of primary care, of effective coordination of care and actions to improve patient safety such as the development of automated analysis of electronic sources of information to highlight unsafe care and to identify potentially unsafe practices before incidents occur.

Changing practice takes time and considerable resources. The costs and benefits of guidelines dissemination and implementation strategies need to be weighed against costs and benefits of expected changes in patient care.

Key messages

- The complexity of patient safety issues is related to the complexity of health care. According to the World Health Organization patient safety is “a freedom, for a patient, from unnecessary harm or potential harm associated with healthcare”.

- Occurrence of patient safety incidents in primary care has been estimated between 5 and 80 times per 100,000 consultations.

- Evaluation of safety practices processes should cover prevalence and severity of the problem targeted by the practice, the current utilization of the practice, evidence on efficacy and/or effectiveness of the practice, the practice’s potential for harm, data on cost if available and implementation issues.

- The majority of medical errors result from faulty systems and processes, not individuals, so it is reasonable to look for process improvement techniques to identify inefficiencies, ineffective care and preventable errors, and then influence changes related to systems.

- The process of patient safety improvement needs to engage and involve all stakeholders and improve their understanding that the investment of resources in quality improvement can be recouped with efficiency gains and fewer adverse events.

- Changing practice takes time and considerable resources. The costs and benefits of guidelines dissemination and implementation strategies need to be weighed against costs and benefits of expected changes in patient care.
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Chapter 4  Barriers to implement Quality Improvement

Katarzyna Dubas, Violetta Kijowska

Learning objectives:
- ability to list the main barriers to QI in GP practice
- ability to describe some examples of overcoming the specific barriers

The chapter provides an overview on the most often reported barriers to quality improvement (QI) implementation in general practice as well as the description of exemplary methods used to overcome the specific obstacles.

Quality is currently high on the agenda in European general practice and quality improvement initiatives are performed at different levels: individual general practitioner (GP) level, within the practice, as well as local, regional and national levels. Plurality of methods, tools and approaches to the QI processes in general practice results in diverse sets of barriers and obstacles which can be overcome.

The speed of introduction of quality improvement systems in specific countries depends on the state of development of profession of general practice within their health care systems. In that respect we can distinguish in Europe three groups of countries. First, with well developed general practice constituting integral part of the health systems (i.e. United Kingdom, Denmark, Ireland, the Netherlands, Sweden). A second group consists of countries where substantial progress has been made since 1990s (i.e. Austria, Belgium, France, Germany) whilst the third one is mainly composed of Central and Eastern Europe countries. Here limited quality improvement initiatives can be hindered by the low status of general practice within the health care system. Moreover, the health systems’ structures of respective countries, their organizational and financial aspects as well as policy priorities can differ significantly. As a consequence, barriers to QI processes should be analyzed only in relation to specific conditions of a given national system of general practice.

Much research has been conducted with the intention of identifying and assessing barriers to QI initiatives in general practice. The authors applied different methodologies, included diverse number of GP and/or practices and focused on different aspects of QI. The outcomes of these studies provide numerous classifications and attempts to prioritize the obstacles to QI implementation in general practice. Whilst the perspective of assessment can differ significantly in specific cases, in majority of research we can clearly distinguish three levels at which barriers to QI may appear: individual GP level, the practice and system levels.

At the individual GP level – his/her attitude, beliefs, values, knowledge and skills determine the quality programmes implementation processes. Many studies have shown that one of the most important barrier to QI is GP’s lack of motivation. In some cases GPs believe that the level of workload required is not worth doing and have strong doubts about positive effects of the QI programmes. Little perceived benefit for care providers or patients seems a common obstacle. What
is important – that even in countries with a long tradition and numerous successes in improving quality (e.g. United Kingdom), GPs can lack motivation to introduce continuous quality improvement initiatives or to proactively seek new opportunities in that field. The misunderstanding of the value of quality improvement and lack of knowledge of its practical benefits by individual GPs can contribute to all of these obstacles.

GPs negative attitude can also stem from the belief that quality measurement is a threat to professional autonomy or a tool to penalize bad performance. Researches show that GPs can be concerned about confidentiality of data and fear of abuse of the audit results by insurers or managers. Important barrier to QI initiatives at the individual GP level is also lack of adequate knowledge and skills. Knowledge of diverse quality improvement methods and practical instructions on how to use them is a prerequisite for successful implementation. It can be difficult for GPs to understand the terminology and concepts of quality measurement and quality indicators. Lack of GPs’ skills required by some specific QI programmes is a common obstacle (it may concern technical skills, e.g. using IT reporting system, organizational ones or some behavioural features – like leadership skills or ability to work in a group).

Barriers to implementation of quality improvement activities that might be identified at the GP practice level stem from several areas with a diverse range and nature. Practice structure, organizational culture and available resources (including funds, staff, availability of information, educational materials, etc.) are crucial for supporting the adoption of new activities. As a result, reported barriers to implementation include: a perceived lack of time as well as financial and technical resources, limited staff, lack of team approach and quality culture within the practice organisation.

Concerns about a lack of time to undertake any new activity are often highlighted as the main obstacles in attempts to introduce a systematic approach to quality improvement in primary healthcare. In this context time constraints could have different dimensions, such as: lack of time for nonclinical tasks, perceived lack of time to plan and conduct QI activity, or assumption that time spent on QI is not time spent with patients, and therefore results in initial declines in productivity. Researches show that improving quality may not necessarily require a large investment of time at any given point, but rather a willingness and ability to persevere over a long period of time, since the evidence of improved outcomes might be observed even 2 to 3 years after the end of QI programme. Thus, GPs may feel unmotivated to push quality-oriented approach into practice.

Quality efforts require people to do work, and funding to provide the resources. Practical application and maintenance of activities devoted to quality improvement is therefore a great challenge. Increased burden, lack of infrastructure and equipment, incompatibility of information technology (IT) systems as well as limited number of available staff have all been reported in several researches as significant challenges at the practice level. Insufficient financial resources are seen as the main obstacle in attempts to introduce a systematic approach to quality improvement. The budgets of some practices are so tight that the perceived time lag between implementing a quality programme and realising the benefits may stop them on the way to quality.

When cultural changes are needed important barriers are the results of lack of cohesion and sense of teamwork within the practice staff. QI is a team process that requires a collective approach,
involvement of the whole practice team and close collaboration in building the quality culture. The existing hierarchies within primary care may interfere with the democratic teamwork necessary to bring about change and thus be an inhibitory factor for implementation of quality improvement initiatives. Obstacles that may impede QI process are: reluctance and resistance to change, lack of leadership from GPs, lack of management support and ability to cooperate with other professionals.

Barriers to quality improvement in general practice at the system level concern lack or inadequacy of support from the government and/or health authorities. Lack of officially and nationally accepted quality framework or a government’s task force for quality indicators can lead to diffusion of responsibility and actually lower the levels of interest in quality standards. One of the common barriers is lack of financial incentives - mechanisms combining quality improvement systems’ outcomes with a financial gratification.

On the other hand, inadequacy of the national standards for the specific practices can also be a serious obstacle (e.g. when the indicators are more appropriate for group than solo practices or when procedures are incompatible with the practices’ systems). In addition, GPs’ total reliance on externally imposed quality objectives and a focus on achievement of the highest outcome against official benchmarks can limit proactive approaches to internal, practice specific quality-related activities. Other studies show that one of the perceived obstacles at the system level is lack of a reliable information system, some complex database that would allow for benchmarks’ comparison.

The overview of exemplary barriers to the QI implementation in general practice, categorised on 3 levels presents Table 1.

Table 1. Overview of the barriers to QI implementation in general practice.

<table>
<thead>
<tr>
<th>LEVEL</th>
<th>EXAMPLES OF BARRIERS</th>
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| Individual GP level | • Lack of adequate knowledge and skills  
                      | • Lack of motivation                                     
                      | • Negative attitude                                       
                      | • Apathy                                                  
                      | • Resistance to change                                    
                      | • Sense of competence                                     
                      | • Little perceived benefit                                
                      | • Perceived threads                                       
                      | • Increased workload                                      
                      | • Concerns about confidentiality of data                  
                      | • Fear of abuse of the audit results by insurers or manager |
                      | • Short-term expectation of improved quality of care     |
| Practice level  | • Lack of technical and financial resources              
                      | • Lack of time                                            
                      | • Extra burden on practice                                
                      | • Lack of team approach to change                         
                      | • Limited staff                                           |
Successful implementation of quality improvement projects in general practice depends on the interaction of multiple factors. One of the first steps should be focused on identification of potential barriers and planning adequate precautionary actions. It is not possible to determine whether strategies tailored to overcome practice barriers are more effective than those focused on individual or system level related obstacles. There is no single solution, as the obstacles and methods to overcome them, strictly relate to the specific conditions of the individual GP, the practice and the system. Improvement of care is likely to be obtained if interventions are tailored to the potential barriers that might occur, rather than are oriented on overcoming all foreseen barriers. Of course, solving some random but obvious problems such as the need for extra time, money and staff plays an important role, but in the most effective - tailoring strategies, not all barriers, but only those perceived as most important and possible to overcome should be addressed.

At the individual GP level – education plays a pivotal role. GPs need training possibilities to acquire a deeper understanding of continuous quality improvement benefits, state of the art knowledge of its methods and to develop their organisational and leadership skills. To achieve QI goals, GPs should be also actively supported through a range of interventions on the practice level including staff education, development of quality standards, financial support or compensation for time spent on quality improvement programmes. The quality projects should reflect current knowledge, be evidence-based, cover important areas, and use reliable and complete data. Quality improvement in primary care settings should be a part of normal daily activity and be treated as an overall strategy focusing on the needs of patients involving all staff members through multidisciplinary teamwork and education.
Important to emphasise that GPs’ practices have the ability to succeed at quality measurement and improvement, if they are supported by technological, cultural and leadership changes that are dependent on efficient leadership, cohesiveness of the group, and a strong sense of teamwork among the staff. When significant obstacles arise while introducing QI programmes they are usually the result of specific professional and organizational cultural issues within general practice. To overcome this, the adjustment of this culture from direct clinical care towards a systematic quality improvement culture should be a priority. The design of a quality framework (specifying the stakeholders, quality instruments, potential incentives and confidentiality) supported and implemented by professional organizations and health authorities is crucial.

Perhaps the greatest challenge facing general practice QI processes is to find the point of equilibrium between trust and control. In a system based on a trust, it is a GP’s will and responsibility to measure performance and improve quality (e.g. in popular in Europe -European Practice Assessment tool). Currently however, many health care systems appear to have a greater focus on control, accountability and public reporting (e.g. within the UKs Quality and Outcomes Framework). Barriers to QI in both systems relate to the same problems, but are perceived from different perspectives. The challenge therefore is to combine the best of both approaches in a balanced model to produce the greatest benefit for patients.

**Key message for GP practice**

- Multiplicity of methods, tools and approaches to the QI processes in general practice result in diverse sets of barriers and obstacles which can be met.
- Three levels at which barriers to QI appear can be distinguished: individual GP level, the practice level and the system level
- At the individual GP level – his/her attitude, beliefs, values, knowledge and skills determine the quality programmes implementation processes.
- Barriers at the practice level relate to the practice structure, organizational culture, and available resources (human, financial, infrastructure)
- Barriers to quality improvement in general practice at the system level concern lack or inadequacy of support from the government and/or health authorities.
- Improvements in care are likely to be achieved if interventions are tailored to the potential barriers that are likely to occur, rather than being oriented on overcoming all foreseen barriers.

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PART III  Appendixes
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National languages:


Glossary of terms

- **Adult learning** – adults are most interested in learning subjects that have immediate relevance to their job or personal life. Adult learning is problem-centered rather than content-oriented. There are many theories of adult learning, one of the most well known is Knowles' theory.

- **Adverse event** – an incident in which harm resulted to a person receiving health care.

- **Adverse reaction** – an adverse event where the correct process was followed for the context in which the event occurred but unexpected and unpreventable harm resulted. (For example, an adverse drug reaction will be said to have occurred when the right drug was used for the correct indication in the right dose given by the right route, but the patient suffered unexpected and unpreventable harm. Adverse reactions can also result from some diagnostic tests, therapeutic interventions or devices, attributes, properties, features, characteristics, or parameters that objects (and classes) can have.

- **Andragogy** – contrasted with pedagogy, means "the art and science of helping adults learn". Knowles labelled andragogy as an emerging technology which facilitates the development and implementation of learning activities for adults.

- **Barrier/obstacle** – refers to something that interferes with or prevents action or progress. It might be something, material or nonmaterial, that stands in the way of literal or figurative progress.

- **Benchmarking** – the process of comparing performance levels in an agency/organization with external standards established as high levels of performance. Involves learning about key methods/processes that enable other agencies to consistently achieve good outcomes.

- **Circumstance** – all the factors connected with or influencing an event, agent or person/s.

- **Clinical guidelines** – systematically developed statements to assist practitioners and patient decisions about appropriate health care for specific circumstances opinion leader – an individual who is seen by other members of the professional group as an influential individual in specific clinical or professional area. The standard definition of Clinical practice guidelines (CPGs) is that of Field and Lohr [1990]: "systematically developed statements to assist practitioners and patient decisions about appropriate health care for specific circumstances".

- **Competence** – the capability to successfully perform discrete observational tasks in a defined assessment environment, in isolation from actual work

- **Competencies** – a set of descriptors outlining the skills, knowledge and behaviours (attitudes) needed by those concerned with quality improvement.

- **Competencies: Composites of individual attributes (knowledge, skills, and attitudinal or personal aspects) that represent context-bound productivity. (J. Van Loo, Defining and Measuring Competences: An Application to Graduate Surveys, Quality & Quantity, 2004)

- **Competencies: Typically, competencies are general descriptions of the abilities needed to perform a particular role in an organization. Competencies should be described in precise terms such that they can be measured, and are relevant to genuine practices as well as relevant to...**
employers, NGOs, etc. (C. Birt, Towards A European Framework for Public Health Competencies, ASPHER, 2011)

- **Complaint** – an expression of dissatisfaction with something.
- **Continuing medical education (CME)** – any and all ways by which a graduated physician continues to learn and change in practice in a lifelong learning scheme.
- **Continuing professional development (CPD)** – a process of planned and individually tailored learning in practice with a focus on the quality of care.
- **Disease** – a physiological or psychological dysfunction.
- **Electronic Health Record (EHR)** – is an electronic version of a patient’s medical history, that is maintained by the provider over time, and may include all of the key administrative clinical data relevant to that persons care under a particular provider (incl. demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data and radiology reports). The EHR automates access to information and has the potential to streamline the clinician’s workflow. It may support other care-related activities directly or indirectly through various interfaces, including evidence-based decision support, quality management, and outcomes reporting.
- **EQ-5D** – is a standardised instrument for use as a measure of health outcome (http://www.euroqol.org)
- **Error** – unintentionally being wrong in conduct or judgement. Errors may occur by doing the wrong thing (commission) or by failing to do the right thing (omission).
- **Event** – something that happens to or with a person.
- **Experiential learning** – is the process of making meaning from direct experience. Experiential learning is learning through reflection on doing, which is often contrasted with rote or didactic learning.
- **Facility** – something that facilitates an action or process which promotes the ease of an initiative or course of conduct.
- **Harm** – includes disease, injury, suffering, disability and death.
- **Hazard** – a circumstance or agent that can lead to harm, damage or loss.
- **Health** – a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.
- **Health care** – services provided to individuals or communities to promote, maintain, monitor, or restore health. Health care is not limited to medical care and includes self-care
- **Health care incident** – an event or circumstance during health care which could have, or did, result in unintended or unnecessary harm to a person and/or a complaint, loss or damage.
- **Health care outcome** – the health status of an individual, a group of people or a population which is wholly or partially attributable to an action, agent or circumstance.
• **Improvement plan** – a document specifying aims, activities, resources and other details necessary to improve quality of care in a practice.

• **Incident** – an event or circumstance which could have resulted, or did result, in unintended or unnecessary harm to a person and/or a complaint, loss or damage.

• **Information and Computer Technologies (ICT)** – is concerned with the storage, retrieval, manipulation, transmission or receipt of digital data, as well as with the way these different uses can work with each other. It includes any communication device or application, (i.e. radio, television, cellular phones, computer and network hardware and software, satellite systems and so on), as well as the various services and applications associated with them (i.e. videoconferencing and distance learning).

• **Injury** – damage to tissues caused by an agent or circumstance.

• **Leadership** – the process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task.

• **Learning objectives** – Statements on what a learner is expected to know, understand and/or be able to demonstrate after completion of a process of learning.

• **Near miss** – an incident that did not cause harm

• **Negligence** (civil or criminal) – an incident causing harm, damage or loss as the result of doing something wrong or failing to provide a reasonable level of care in a circumstance in which one has a duty of care.

• **Non incidents** – that are incidents that have been reported whereby nothing out of the ordinary, or no amount of intervention could have prevented it from occurring. There were no outcomes for the subject.

• **Outcome** – the status of an individual, a group of people or a population which is wholly or partially attributable to an action, agent or circumstance.

• **Outreach visit** – contact in the providers’ practice with the care provider trained individual who provides information, instruction and support and many times also feedback on current practice

• **PACIC** – a tool to measure the quality of care according to the chronic care model and patient motivation according to the “5A” principles (assess, advise, agree, assist, and arrange) ([http://www.improvingchroniccare.org](http://www.improvingchroniccare.org))

• **Plan-Do-Check-Act strategy** – an iterative four-step management method used for the control and continuous improvement of processes

• **Preventable** – accepted by the community as potentially avoidable in the particular set of circumstances.

• **Problem-based learning (PBL)** is an approach that challenges students to learn through engagement in a real problem. It is a format that simultaneously develops both problem solving strategies and disciplinary knowledge bases and skills by placing students in the active role of problem-solvers confronted with an ill-structured situation that simulates the kind of problems they are likely to face as future managers in complex organizations. Problem-based learning is
student-centered. PBL makes a fundamental shift from a focus on teaching to a focus on learning. The process is aimed at using the power of authentic problem solving to engage students and enhance their learning and motivation.

- **Quality** – total quality is best defined as an attitude, an orientation that permeates an entire organization, and the way in which that organization performs its internal and external business. People who work in organizations dedicated to the concept of total quality constantly strive for excellence and continuous quality improvement in all that they do. The Institute of Medicine defines healthcare quality as the extent to which health services provided to individuals and patient populations improve desired health outcomes. The care should be based on the strongest clinical evidence and provided in a technically and culturally competent manner with good communication and shared decision making.

- **Quality (degree of)** – the extent to which a service or product produces a desired outcome or outcomes.

- **Quality circle/peer review group** – 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.

- **Quality criteria** – indicators with precisely defined numeric value

- **Quality cycle** – a method used for continuous improvement of patient care; consist of setting goals, assessment and improvement of care.

- **Quality improvement (QI)** – the combined and unceasing efforts of healthcare professionals, patients and their families, researchers, payers, planners and educators to make changes that will lead to better patient outcomes, better system performance and better professional development.

- **Quality indicator** – measurable element of care that can be used for assessment

- **Quality of health care (degree of)** – the extent to which a health care service or product produces a desired outcome or outcomes.

- **Risk** – the chance of something happening that will have a negative impact. It is measured in terms of consequences and likelihood.

- **Root cause analysis** – a systematic process whereby the factors which contributed to an incident are identified.

- **Safety** – freedom from hazard.

- **Side effect** – an effect, other than that intended, produced by an agent (see also ‘adverse reaction’).

- **Standards of care** – quantified specification of criterion used in determining the quality

- **System failure** – a fault, breakdown or dysfunction within an organisation’s operational methods, processes or infrastructure.
- **System improvement** – the result or outcome of the culture, processes and structures that are directed towards the prevention of system failure and the improvement in safety and quality. Being granted recognition for meeting designated standards for structure, process and outcome.

- **Tailoring** – refers to a process of creating individualized intervention materials or strategies, or to the adaptation of interventions to best fit the relevant needs and characteristics of a specified target population.

- **Teamwork** – work performed by a team towards a common goal; advocated by agreed activities and behaviour as a means of assuring quality and safety in the delivery of services.
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