ICO Guide to Effective CPD/CME

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Access at: www.icoph.org/ICO-CPD-CME.html
Preface

Dear Reader,

The intent of this e-book is to serve as a practical guide to the relevant concepts and questions regarding Continuing Professional Development-Continuing Medical Education (CPD/CME).

The e-book starts with “Forward & Perspectives” section that includes comments from ICO leaders and other individuals with interest in CPD/CME. Subsequently there are five main sections addressing the following topics:

1. CPD/CME concepts
2. Participant/individual role in CPD/CME
3. Educators role in CPD/CME
4. Organizational (Society, College) role in CPD/CME development
5. Regulators role in CPD/CME

The e-book is not necessarily designed to be read from beginning to end but rather the reader may skip around to what they find most relevant. Thus there is some planned redundancy within chapters to be sure each chapter stands alone as a learning event. Chapters have hyperlinked words or phrases that direct the reader to more detailed reading on specific topics. This problem-based design was chosen to facilitate readers and thus sequential reading is not required.

As a living document, this eBook will welcome updating of existing manuscripts as future additions.

We hope you enjoy and benefit from this reading,

Helena P. Filipe, Heather G. Mack, Eduardo A. Mayorga, and Karl C. Golnik
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Foreword

For physicians, and speaking as an ophthalmologist, learning can and should be a joy, and it is certainly our responsibility to receive continuing professional development (CPD) and continuing medical education (CME).

Continuous learning provides many of us with satisfaction, but unfortunately, there are a substantial number of our colleagues who are not current, having not continuously learned since they left training. Reasons include laziness, a feeling of being overburdened in practice, and for some, inadequate skills to become an independent, continuous learner. The latter—lack of skills—is addressed in the ICO Guide to Effective CPD/CME.

Responsible professionals owe it to themselves and their patients to maintain a current level of ophthalmic knowledge and skills that can be implemented in their practice. CPD does not come as a passive experience, but requires thought, effort, and persistence. Active learning was certainly a part of every ophthalmologist’s training experience, and so it should continue to be in daily practice.

Many of us learned in a traditional way: the teacher determined the curriculum, and the passive learner received what the teacher thought was important. As adult learners, some of us have not acquired the routine or the skill set necessary to become consistent, continuous, and active learners. This guide provides practical information that will help any person who is interested and committed, become a competent adult learner.

I highly recommend continuous commitment to CPD/CME as a daily part of your medical/ophthalmic career. If you take the time and energy to utilize what this guide contains, I guarantee that you will find improved ease, more satisfaction, and greater accomplishment. You and your patients will be far better for it.

Bruce E. Spivey, MD, MS, MEd
Immediate Past President, International Council of Ophthalmology
Chair Emeritus Ophthalmology, California Pacific Medical Center
Introduction

It is with much pleasure that I introduce the ICO Guide to Effective CPD/CME. The International Council of Ophthalmology prides itself on taking a leading role in the education of ophthalmologists around the world. Although education in ophthalmology may start in medical school and continues through residency or registrar training and fellowship training, there is an increasing need for proper continuing professional development (CPD) and continuing medical education (CME).

It is often said that half of the medical knowledge we have today will be proved to be wrong and discarded within 10 years from now. The problem we face is that we do not know which half will be proved wrong! This, and the rapid explosion of knowledge, techniques, and treatment options mean there is a pressing need for every ophthalmologist to make sure that they maintain their skills and competency. This is clearly a larger task that just continuing education, and it also requires a more formal process of professional development, which extends CME to include self-appraisal, auditing, and clear goal setting.

I am delighted to see development of this important guide, which has been led by Helena P. Filipe, MD, MSc, Chair of the ICO Continuing Professional Development Committee, and Former Chair, Heather G. Mack, MBBS, MBA, PhD, FRANZCO, FRACS. However, I also want to extend my thanks to all members of this committee and the many others who also helped in the preparation of this material. We as a profession owe them a debt of thanks.

I trust that you will read and use this material and that it helps you continue to raise the level of care that we as ophthalmologists provide.

Hugh R. Taylor, AC, MD
President, International Council of Ophthalmology
Melbourne Laureate Professor, Harold Mitchell Chair of Indigenous Eye Health, University of Melbourne
What is the Relevance of CPD/CME in Medical Education?

1. CPD is a vitally important area in improving medical education of practicing ophthalmologists and subsequently improving eye care worldwide. As medical sciences advance with new techniques, new medication, and new approaches to treatment and patient care, practitioners must be familiar with these advances to provide good medical care.

2. CPD should be a local effort, as eye care depends on the local disease pattern, regional medical resources, and prevailing ophthalmic practice. As such, the curriculum, the regulation of the educational program, the review of the participant’s achievement, and the eventual certification of the practitioner to continue to provide eye care in the community must be managed and regulated by the regional ophthalmic authorities with or without governmental assistance. The role of the ICO will be to provide general guidelines in the curriculum development, a system of administration, and possibly accreditation.

3. CPD assessment may be arranged in cycles of two to three years. This longer period will allow the practitioner to participate in a variety of activities to satisfy the spectrum of CPD criteria.

4. By encouraging participation in different formats, the CPD activities may develop to be an exciting experience for the practitioner and lead to secondary benefits to the local ophthalmic society.

5. CPD activities may be divided into (a) passive participation and (b) active participation of the practitioners.

   Passive Participation: Practitioners attend meetings, including conferences, symposiums, grand rounds, and other activities. Passive participation activities should not be more than 50% of the CPD activities.

   Active Participation: Practitioners should play an active part in education, such as being speakers, panelists, and moderators at conferences, presenting posters, and similar active participation.

   a. Self-study may also be a form of CPD activity. Examples of self-study include study of ophthalmology journals, and reviewing videotapes, audio tapes, or articles for publication. Written summary of the self-study must be documented as a demonstration of activities completed.

   b. Publication in the field of ophthalmology and related fields may be counted as a
form of CPD activity. Participants are encouraged to provide case reports, letter to editors, and published articles so they are active participants in the advancement of ophthalmic practice and education.

c. Other possible CPD activities may include quality assurance reports, functioning as an examiner of qualifying ophthalmic examinations, under-graduate, postgraduate, or resident teaching, as well as development of CPD materials.

6. Acute or prolonged illness, disability, and other unexpected reasons where the practitioner might be unable to participate in CPD programs may be considered as conditions for exemption from CPD participation.

7. Noncompliance of CPD activity may be allowed under specific circumstances. An appeal process may be established and a remedial program may be arranged to make up deficiencies.

**Conclusion**

It is important that CPD activity be encouraged for the improvement of patient care. CPD should not be considered as a chore or burden—an added responsibility to the practitioner’s already heavy load of clinical and administrative duties. We must make CPD programs a spectrum of fun-filled activities.

Mark O.M. Tso, MD, DSc
CPD Activities Must be Designed to Help

Since most practicing ophthalmologists have a heavy clinical schedule, continuing professional development (CPD) activities must be fun-filled and designed to provide value and help practitioners with their daily work.

Frequently CPD activities are planned to give the latest and most recent esoteric new information, which the practicing ophthalmologist may have little opportunity to use in their daily practice. Other CPD activities may appear dull and uninteresting to the busy practitioner.

In order to induce the practitioner to enthusiastically participate, CPD activities must be of great practical use. As such, the CPD curriculum should emphasize local disease patterns, and the knowledge learned must be able to be applied with the available regional medical resources.

CPD activities must be so enticing that the practitioner would participate not only as a learner but also as a teacher. CPD activities and curriculum should not be viewed as an imposition of regional ophthalmic authorities with or without government supervision.

With this in mind, the ICO Guide to Effective CPD/CME may produce useful curriculum and programs that are easy to administer and delightful to participants. Attendance of CPD activities is frequently required as criteria for continuation of medical license registration and is used for accreditation purposes.

Mark O.M. Tso, MD, DSc

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The Importance of Continuing Medical Education: Perspectives of a Young Ophthalmologist

The development and maintenance of a continuing professional development (CPD) program is a key component of any modern medical postgraduate training standard. The concept that one does not need to formally engage in post training educational and audit activity is outdated and unsafe. Medicine is a continually evolving profession, skills and knowledge acquired in our medical school and early postgraduate training may be surpassed. As we progress in our careers we must never lose focus on our responsibility to achieve quality. Patient-centered care is at the heart of what all doctors must practice. CPD is integral to maintaining that standard in our careers past the formal examination stage. Awareness of new evidence and technologies is paramount in maintaining those standards. Additionally, we must be cognizant of the need to promote, support, and maintain the profession to which we have dedicated ourselves.

Doctors are best qualified to deliver patient care across all specialties, but the patient must be able to retain a faith and knowledge in what we do. The CPD program provides a truly transparent means to achieve this. Audit is at the heart of this process and provides an opportunity for us all to assess our own practice against national and international standards. This process improves transparency and trust.

Embarking on a CPD program is daunting at first, but as you document your course attendances, journal reading, delivered lectures, strategic meetings planned/attended, along with your paper writing and audit activity, you can reflect on an impressive body of continuous education and professional development.

Patients, policy makers, and allied health professionals must realize that ophthalmologists are not a luxury. We are a necessity. We are required to deliver or oversee all levels of eye care (primary, secondary, and tertiary). The clinical responsibility rests with physicians.

David Keegan, PhD, FRCOphth, FRCSI(Oph)

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CME and CPD for Developing Countries: The Challenges

In 2010, the ICO Task Force on Continuing Medical Education conducted a worldwide survey. A letter was addressed to national and supranational ophthalmic societies requesting information on continuing medical education (CME) activities organized in their respective countries. The task force obtained 114 answers.

Most countries ophthalmological societies organize some form of CME activities: 93% of societies organized annual, biannual, or triennial congresses; 80.5% had regular scientific sessions; 54% edited a scientific journal; 50% provided a newsletter; and 86% had a website. About 27% of respondents skipped one or more questions. However, to the question, “Do you have a formal CME program offering credits or points?” 44% responded “No,” and 35 societies did not answer. Forty six percent of the respondents did not have a CME Committee, with 38 societies not answering the question.

The primary mission of the ICO Task Force on Continuing Medical Education was to work with societies who did not have a CME Committee or a formal, structured CME program.

As a result, the task force developed the document “Continuing Professional Development,” which provided a program for continuous education, and this was distributed to societies who did not have a formal CME program. This program of continuing professional development was based on a points system. The societies, however, were sovereign in determining the classes of activities, the number of points allocated to each activity, the certificates to be given, and the audits to be conducted. The program included:

A. Category I Activities

Independent professional development, research, publications, and presentations

B. Category II Activities

Passive learning and self-education

The survey showed that 57% of countries DO NOT require individual recertification (skipped question: 38 Societies). The goal of the task force was to convince societies that CPD is a necessity because of the rapid change in medical knowledge and techniques and because of the high level of public expectation and evolving information. The task force provided examples of points allocation and skills transfer activities to developing countries and encouraged their implementation. Visiting Professors were sent to several countries in Africa to implement a skills transfer program, such as a program on phacoemulsification in Nigeria.
The results of the task force’s efforts are showing some results: India, as well as some countries in Latin America, adopted the model of CPD.

There is still much work to be done in the field of CME and CPD in developing countries.

Juan Verdaguer Tarradella, MD
**CPD/CME: Past, Present, and Future**

In the past, continuing medical education (CME) focused on maintaining and improving ophthalmologic medical knowledge and skills. CME events were mostly meetings and printed material. It was not particularly individualized to one’s specific needs, and there were no requirements as to how much or what type of content was needed. There were few rules regarding industry’s participation in CME events.

Currently a variety of factors have led to fundamental changes in how we develop and deliver CME. These factors include the rapid increase in medical knowledge, proliferation of new technology and required skills, e-learning, regulations regarding production of CME, and societal expectations. Indeed, these factors have led to a new term “Continuing Professional Development” (CPD). CPD encompasses all of CME plus other aspects of being an effective physician, such as professionalism, ethics, and communication skills. Many countries now have organizations that assess and accredit CPD to assure high quality.

Effective CPD should:

- Be individually relevant addressing one’s learning gaps;
- Produce change in the participant’s practice;
- Have no commercial bias; and
- Be required.

All of these concepts are described in detail in the *ICO Guide to Effective CPD/CME*. Fortunately, availability of CPD has dramatically increased with the advent of e-learning, such as interactive CDs, online courses, webinars, and remote online attendance of meetings. Lack of availability is no longer a barrier to obtaining CPD.

In the future, CPD will be increasingly important. New knowledge and required skills will exponentially increase. The world will continue to shrink as mobility of patients and physicians expands. Thus ophthalmologists may be caring for patients from regions with unfamiliar diseases. Countries without physician CPD requirements will decrease. Electronic medical records will make patient outcomes more transparent and drive physicians to self-improvement through effective CPD. Increased demand will produce opportunity for CPD providers (eg, ophthalmic societies) to fund their non-CPD activities. Predicted shortfalls of ophthalmologists will necessitate new models of patient care and subsequent need for CPD in these areas.

Thus, CPD is evolving and crucial for the physician’s continuing competence to provide quality eye care globally. The availability of more effective CPD is increasing, but the
demand will necessitate ever increasing opportunities for quality CPD. For all of these reasons the ICO felt a resource like the *ICO Guide to Effective CPD/CME* was needed to guide users and providers of CPD/CME.

Karl C. Golnik, MD, Med
Glossary

Accreditation
The decision that a provider, individual, program, or institution has met quality, educational, and other criteria, pre-established by the accrediting body.

Accountability
The assumption of responsibility for the quality of one’s own actions and decisions and the expectations of others for resulting consequences.

Andragogy
The science of understanding and supporting adult education that is characterized by independent learning in close association with job-related experiences.

Advocacy
Health advocacy consists of undertaking activities that support and promote patient health care rights, as well as enhance community health and policy initiatives, focused on the availability, safety, and quality of health care.

Appraisal
A systematic and periodic process that assesses performance of an individual in relation to certain pre-established criteria and objectives, usually by an interview in which accomplishments and potential for future improvement are discussed.

Audit
An evaluation of a person, organization, system, process, project, or product performed against defined standards or criteria to ascertain the validity and reliability of information, and also to provide an assessment of a system's internal control.

Bias
A preference or an inclination that prevents objectivity or neutrality.

CPD/CME Activity
An educational event or other learning experience for doctors that is based upon identified learning needs, has specific learning objectives and final evaluation, and demonstrates that the learning needs have been met with the ultimate impact in the provision of quality health care.
**CPD/CME Provider**
Any organization or person providing and managing a CPD/CME activity. This may include government agencies, educational institutions, and hospital-based groups.

**Collaboration**
The process of discussion and negotiation by a doctors’ team regarding learning goals, standards to be met, and assessment methods.

**Commercial Support**
Full or partial financial support for CPD/CME educational events provided by a commercial interest.

**Communication**
The meaningful exchange of information either verbal or written, or by non-verbal exchange, such as body language and eye contact.

**Competency**
Specific knowledge, skills, behaviors, and attitudes, and the appropriate educational experiences, required to perform an activity. These include patient care, medical knowledge, practice-based learning and improvement, interpersonal and communication skills, professionalism, and systems-based practice.

**Conflict of Interest**
When an individual’s interests are aligned with those of a commercial organization, the interests of the individual are “in conflict with” / “compete with” the interests of patients and the public and with the individual's duty to act independently in the interests of patients and the public.

**Continuing Medical Education (CME)**
A predetermined program through which health care professionals maintain, develop, and increase their medical knowledge and skills in order to provide high quality services for patients.

**Continuing Professional Development (CPD)**
A concept that encompasses all formal and informal activities that promote physicians developing, updating, and enhancing not only knowledge and skills in medicine, but also behavioral and ethical attitudes, leading to the provision of high quality services for patients.
**Credentialing**
The formal process used to verify the qualifications, experience, professional standing, and other relevant professional attributes of medical practitioners, for the purpose of establishing their competence, performance, and professional suitability to provide safe, high quality health care services within specific organizational environments.

**Credits**
Predetermined points given as a means for documenting time and/or effort spent in a CPD activity.

**Dyscompetence**
Dyscompetence has no universally accepted definition. Dyscompetence refers to medical practitioners who are not performing to acceptable standards.

**Evidence-Based Learning**
When the methods used for an education process, are based on significant and reliable evidence derived from experiments.
It shares with evidence-based medicine the aim: to apply the best available evidence, gained from the scientific method, to educational decision making.

**Evidence-Based Medicine**
"The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research." David Sackett

**Facilitator**
An educator who gives direction and encouragement to one or a group of learners in order to enable them to acquire new competencies through a process of self-directed learning.

**Learning Gap**
The discrepancy between a current level of knowledge, skills, and attitudes and the pre-established desired level.

**Learning Objective**
An intended outcome for an educational activity that clearly describes what the participant should have learned and is able to demonstrate after participating in a CPD/CME activity.
Learning Dissemination
The action of reporting back and sharing with colleagues what has been learned in a CPD/CME activity.

Learning Reinforcement
The action of strengthening what has been learned from a CPD/CME activity by finding opportunities in practice to repeat the learning process and apply what has been learned.

Meta-analysis
A way of combining data from many different research studies. A meta-analysis is a statistical process that combines the findings from individual studies to obtain a pooled estimate.

Needs Assessment
A process of acquiring and analyzing data that reflect the need for a particular educational activity. An evaluation of the difference between current and required knowledge, skills, attitudes, or behaviors used to determine priorities in developing educational activities and their defined learning objectives.

Participation in an Educational Event
The action of engaging in an educational event for the purpose of filling a knowledge gap in the physician’s personal learning plan.

Personal Learning Plan
An outline of activities for learning, self-determined and self-directed by an individual physician, that fits into that individual’s clinical practice. The plan should also include documentation of what has been learned.

Performance
The way an individual acts in a real-life encounter with a patient, when applying learned knowledge and skills.

Portfolio
A comprehensive record for an individual physician that includes documentation of learning events attended, new protocols adopted, audit data, research reports, ideas and clinical data, evidence of outcomes, and reflective commentary. This portfolio may be stored in any format deemed useful by the individual.
**Professionalism**

Individual behavior that follows professional standards of practice and ethics for a particular field that are typically agreed upon and maintained through widely recognized professional associations.

**Regulatory Body**

Authority with the capacity and legitimation to establish rules and regulations for accreditation and practice of medicine and medical specialties. This may be a government body or an independent regulator.

**Remediation**

The process of addressing performance concerns (i.e., knowledge, skills, and behaviors) that have been recognized through assessment, investigation, review, or appraisal, so that the practitioner has the opportunity to return to safe practice.

**Revalidation**

The process whereby a registered professional is reassessed to ensure that they are fit to practice and continue with the activity, as defined in their license.

**Self-Directed Learning**

The learner takes responsibility for his or her own education and continued professional development.

**Stakeholders**

Defined as those with a vested interest in CPD/CME (i.e., practicing doctors, professional organizations, CME/CPD providers/educators, regulating bodies, and health care system authorities).

**Systematic Review**

A summary of the clinical literature. A systematic review is a critical assessment and evaluation of all research studies that address a particular clinical issue. The researchers use an organized method of locating, assembling, and evaluating a body of literature on a particular topic using a set of specific criteria. A systematic review typically includes a description of the findings of the collection of research studies. The systematic review may also include a quantitative pooling of data, called a meta-analysis.

Maria B. Yadarola, MD, and Annabelle A. Okada, MD, DMSc

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   Heather G. Mack

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Chapter 1. Core Principles of Good CPD/CME

Summary

This chapter summarizes the basic concepts and good practices of effective continuing medical education (CME) and continuing professional development (CPD). “Stakeholders” are defined as those with a vested interest in CPD/CME (ie, practicing doctors, professional organizations, CPD/CME providers/educators, regulating bodies, and health care system authorities).

At the completion of this section, you should be able to:

- Compare and contrast CPD and CME;
- List and explain the core principles of effective CPD and CME; and
- Describe main tools and methods of effective CPD and CME.

1. Concept

Definition

The purpose of CME is to keep physicians current in their medical practice as part of a lifelong learning commitment to their patients and society. CPD/CME includes and extends the initial CME concept by embracing the necessary elements of “Good Medical Practice,” such as knowledge, skills and performance, safety and quality, communication, partnership and teamwork, and maintaining trust.¹ ² ³ (Figure 1).
Figure 1. Continuing professional development (CPD) incorporates and goes beyond the classical concept of continuing medical education (CME), as defined by the European Union of Medical Specialists (UEMS).

CPD/CME acknowledges that being a good physician includes competencies that extend beyond medical knowledge, including managerial, ethical, social, and personal skills.\(^4\)

**Background**

CPD/CME has become increasingly relevant for many reasons, including:

- Doctors are leading longer professional lives, and patients are living longer;
- Increased global mobility of patients and health care professionals;
- Accelerated proliferation of new knowledge, technology, and techniques;
- High societal expectations of the medical profession;
- Changing needs of health care systems;
- Complex health care working environments, whereby doctors are constantly challenged to develop and master multidisciplinary teamwork among peers, allied health care personnel, employers, regulators; and
- Proliferation of recertification requirements in many countries.

There are impediments to be overcome, however, regarding current CPD/CME. These barriers include:
• Incomplete understanding of the rationale behind CPD/CME;
• Worldwide differences in CPD/CME requirements and availability;
• Noncompliance with best practices to design, develop, implement, and evaluate CPD/CME;
• Improperly defined commercial sponsorships and biased education;
• CPD/CME systems based exclusively on credits awarded for hours spent in learning activities;
• Often expensive compulsory systems requiring mandatory procedures for relicensure that have not yet been proven better for health care;
• Overburdened doctors with less time allocated to learning;
• Underfunding of CPD/CME programs;
• Inadequate assessment tools of CPD/CME activities to gauge cost-effectiveness; and
• Lack of a clear role-definition and coordination of all CPD/CME stakeholders.

Definitions of CPD/CME abound, each usually emphasizing some particular aspect especially valued by the defining CPD/CME stakeholder. Nonetheless, there is general agreement that the wider perspective of CPD/CME should:

• Embrace competencies beyond the clinical knowledge and skills that are classically viewed in CME;
• Encompass the changing and highly complex, multidisciplinary working environment of health care providers;
• Produce behavioral change in medical practice and measurable improvement in health care;
• Demonstrate that the medical professional is accountable;
• Be open, transparent, and regulated with particular emphasis on self assessment;
• Consider a wide variety of delivery formats, including on the job learning;
• Be a cyclic and self-directed process tailored to both a personal and professional practice needs assessment;
• Follow adult learning principles;
• Encompass medical education as professionalism’s core feature and demonstrate accountability. 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15

2. Core Principles of Effective CPD/CME

Given its increased emphasis and current impediments, effective CPD/CME must incorporate the principles described below.
Although basic medical and residency training have long been formally regulated, it is only recently that CPD/CME has captured focused attention, and there is wide variability in the global approach to CPD/CME.\textsuperscript{16, 17} CPD/CME programs and structured frameworks must be regionally adapted, but they all share a certain amount of universal features and principles. A streamlined flow of documentation combined with a credit-awarding system should be pursued to articulate information among all CPD/CME stakeholders.

The International Council of Ophthalmology (ICO) has suggested that ophthalmic societies are best suited to assume responsibility for designing, implementing, and assessing CPD/CME programs and schemes through their CPD/CME Committee. Accordingly, the ICO has compiled useful guidelines to administer and manage CPD/CME.

**Comprehensive**

CPD/CME should encompass all competencies of the medical profession, including medical expertise, collaboration, communication, leadership, health advocacy, scholarship, and professionalism.

**Accredited**

CPD/CME programs should offer unbiased educational experiences complying with adult learning principles. The ICO has suggested accreditation criteria, including commercial sponsorship guidelines.\textsuperscript{5} As e-learning is now a widely accepted CPD/CME learning method, specific accreditation guidelines to comply with best CPD/CME practices, have been proposed.\textsuperscript{18, 19}

Effective learning interventions should be designed upon specific, measurable, attainable, relevant, evidence-based, and time-bound learning outcomes. The latter should be focused on the assessment of the needs of CPD/CME stakeholders.

**Regulated**

**Demonstrable:** CPD/CME should become a credible and transparent process amenable to regulation.\textsuperscript{20} CPD/CME should employ a formalized method to emphasize that a physician’s practice is safe and operating at the highest standards.

**Documented and Reported:** There are several methods to monitor and report CPD/CME activities, which basically consist of two components that can coexist to a certain extent:

- **Credit based:** where each hour spent on educational activities is awarded one credit. Each physician is required to spend a defined period of time in CPD/CME–based activities.
- **Document based**: consisting of a streamlined flow of documents ascertaining the physician’s engagement and completion of CPD/CME activities.

**Prove Accountability**: CPD/CME must be professional and socially relevant to meet the hidden social contract between society and the medical profession. The imposition of a greater social accountability into the accreditation of CPD/CME activities will result in professionals well aligned with societal health goals, such as equity, quality, and efficiency.\(^{14, 21}\)

### 3. Tools and Methods

While CME has traditionally been concerned with disseminating information, CPD/CME has shifted the emphasis to demonstrating a change in clinical practice behavior.\(^1, 10\) There are several useful tools and concepts to guide development of CPD/CME according to an effective methodology consistent with good practices.

**CPD/CME Cycle**

Effective CPD/CME is a cyclic process triggered by the identification of learning needs while practicing. Identifying needs activates a plan to undertake the best CPD/CME activity to bridge that learning gap. Assessing the educational experience undertaken is necessary to ascertain if and how the practice has changed and whether the learning gap has been closed. The CPD/CME action plan should answer the questions:

- What will I learn?
- How will I learn?
- How well have I learned?

**Personal Learning Plan**

CPD/CME is driven by the personal and practice needs of the provider, and it is outcome oriented. Physicians’ needs are individual and related to the population they serve within their particular organization and facilities. Personal learning plans should reflect the cyclic process of CPD/CME and provide questions, plans, activities, and results of self-progression. The ICO has suggested a useful template for those interested in using this tool in their personal CPD/CME.\(^5\)

**Portfolios**

To demonstrate their accountability to society, doctors should present evidence of their plans, achievements, and reflections, and offer a self-assessment on their progression as professionals. Portfolios, more than curriculum vitae, consist of a collection of documents
portraying a doctor’s continuing education and practice achievements. E-portfolios can be created upon a standard template offered by some organizations engaged in medical education, such as the British Medical Journal. The portfolio can be reviewed by the practitioner to look for learning gaps and thus be both a learning and assessment tool.

Clinical Audits

Clinical audits are valuable cyclic assessment tools, which essentially demonstrate a physician’s accountability to society. An audit is a sequential five-step process to:

1. Identify the problem or the topic audit;
2. Set criteria and standards to establish the acceptable level of performance;
3. Collect data through direct observation, peer-review, questionnaires, etc.;
4. Compare practice with standards and report if those were met and explain why, if not; and
5. Implement changes, follow change progress, and re-audit if necessary.

Accreditation

Accreditation is the process whereby educational events are evaluated by an external body to ascertain if established criteria are met to serve CPD/CME purposes.

Two aspects should be emphasized within this context:

- Commercial sponsorship should occur under specific rules to comply with CPD/CME good practices.

- Web-based learning, from more classical courses to the educational use of social media, virtual worlds and simulations, is now considered an effective learning format to be incorporated in CPD/CME programs. Web-based learning should also comply with accreditation guidelines to serve CPD/CME purposes.

Conclusion

CPD/CME has changed over time from passive dissemination of information to improving practice behavior and patient outcomes. Effective CPD/CME should be supported by a collection of useful tools and methods so that it becomes a systematic, comprehensive, accredited, regulated, self-directed, outcome-oriented, cyclic, and continuing process.
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Chapter 2. CPD/CME Quality Assurance: A Burden or a Means to Ensure Medical Profession Accountability?

Summary

This chapter describes the importance of a clear and transparent continuing professional development (CPD) process. “Stakeholders” are defined as those with a vested interest in CPD/CME (ie, practicing doctors, professional organizations, CPD/CME providers/educators, regulating bodies, and health care system authorities).

At the completion of this section, you should be able to:

- Explain the importance of accountability in the medical profession; and
- List useful tools and procedures to demonstrate good CPD/CME.

Introduction

Continuing medical education (CME) and CPD are a lifelong learning process, which starts in undergraduate training and continues throughout professional life.

Practicing physicians are motivated to care about their own CPD by their need to:

- Provide the best possible patient care (professional relevance);
- Honor the needs and expectations of their employers and society (social relevance); and
- Maintain job satisfaction (personal relevance).  

CPD incorporates a wider concept of continuing development of skills than classical CME by including collaboration, communication, leadership, health advocacy, scholarship, and professionalism. Learning venues extend beyond lecture halls, increasingly including practice settings that use a wide variety of teaching formats that can be selected according to personal preference, context, and appropriateness. CPD/CME is self-directed, goal-oriented, and should be applied in clinical practice. Effective CPD/CME evolves through a cycle of events that reflect daily practice:

- Identification of a clear need or reason to learn;
- Selection of the best strategy to learn;
- Undertaking the educational event; and
- Follow-up, reinforcement, and dissemination of new learning.
1. Relevance of Accountability in the Medical Profession

Besides enabling doctors to provide safe and up-to-date care, CPD/CME also has a social component. There has long been a social contract honored by physicians towards society. Socially accountable health care encompasses the broader context of CPD/CME to include personal, social, and political aspects of health care involving a widening of accountability for all stakeholders. Demonstrating effective CPD/CME through proper documentation and reporting of professional development is important in enhancing trust in the medical profession. Commitment to social accountability can be demonstrated by adhering to the following values:

- **Health advocacy** involves the responsibility to address social health care issues (eg, diabetic retinopathy) and to educate the public on these issues.
- **Credibility** of physicians in improving quality performance and patient-care safety helps to gain society’s trust by ensuring that a physician’s CPD/CME is tied to an unbiased education. Any commercial sponsorship must comply with good practice, and interaction between pharmaceutical companies and physicians must be transparent. CPD/CME funding sources should be varied and the organizations where a physicians’ work must encourage CPD/CME.
- **Competence** must be maintained and enhanced, assured by CPD/CME, and ultimately measured by patient outcomes.

Thus, social accountability is nurtured by effective CPD/CME, which should be measured against values such as relevance, quality, equity, and cost effectiveness.6

Although social accountability may seem a vague concept, there are already effective models of socially accountable CPD/CME (eg, Canada and USA) linking CPD/CME to health care determinants.2, 7

2. Tools and Procedures to Demonstrate Good CPD and Maintain Medical Profession Accountability

CPD/CME is a learner-centered process and unlike undergraduate and residency training in medicine, CPD/CME does not follow a standardized curriculum. Embracing a culture where continuing education and assessment (eg, peer review, appraisal, and revalidation) are not regarded as threatening concepts is central because it brings higher value to learning and to the profession.8 The following are some tools and procedures to demonstrate CPD/CME:

- **Portfolio**: Continuing development should follow a personally designed learning plan (PLP), which if reported adequately, should demonstrate good CPD. A CPD
portfolio, as an individual collection of professional aspirations, achievements, and reflections, can be both an assessment and a learning tool. A CPD portfolio may be submitted to external review to provide documentary evidence to support revalidation. As an assessment tool, a portfolio demonstrates good professional accountability.8, 9

- **Clinical Audits:** Audits are excellent assessment tools for professional performance and patient outcomes. In an increasingly critical environment, audits as quality improvement tools, can demonstrate real efforts being made by medical professionals to deliver the best medical care.10 Audits are an important component of medical professional accountability and can work as a method of determining gaps in knowledge.11

**CPD/CME Application Templates**

Comprehensive and systematic reporting of CPD/CME is essential to show how physicians are accountable to peers, employers, and society.5 Nevertheless, this cannot be an end in itself nor represent a burden to the practicing specialist.

Thus, some professional agencies provide documentation templates for systematizing and easing physicians’ reporting of their CPD activities and demonstration of their career progression CPD/CME.12

Some professional agencies offer online processes that provide a streamlined documentation process for physicians to demonstrate their CPD tools and strategies for creating a personal learning plan and a CPD/CME activities report is suggested. These online platforms should be mobile, user-friendly, seamless with learning events already recognized as compliant to CPD/CME good practices, and ideally link educational events to the specific CPD/CME competency.13

**Accreditation**

Accreditation is an option designed to improve quality of activities. If implemented badly it does not improve quality and comes with prohibitive cost, making it not possible to accredit in low resource settings. This assures their compliance with well-established quality criteria to attain meaningful learning. Commercial sponsorship can exist but must follow clear guidelines to mitigate and manage any conflict of interest.14

The governing principle underlying the methods for financial accountability—both for the individual physician and for the CPD/CME provider—must be based on openness and
transparency. Funding from third parties, such as the pharmaceutical industry, must comply with these criteria and should be permitted only in accordance with national and international guidelines.\textsuperscript{9}

\textbf{Revalidation}

Revalidation can be described as the process by which physicians periodically demonstrate to their regulating authority that they are capable of maintaining a safe and up-to-date practice.\textsuperscript{15}

\textbf{Conclusion}

Ensuring a physician’s competence has long been the goal of individuals, professional agencies, and society. Stakeholders are now demanding greater accountability from the medical profession and well-designed CPD/CME can help achieve this. A systematic, comprehensive, and well-documented CPD/CME approach may seem difficult to implement because it can be considered as extra work for the already overburdened physician. Nonetheless, there is increasing focus on documenting the CPD/CME process to make it transparent and amenable to regulation, and therefore, fully credible. The systematic organization of a rich collection of CPD/CME activities into an effective PLP, along with good reporting, will help ensure quality and demonstrate accountability from both the profession and the individual physician.

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Summary
This chapter defines the relationships between medical training, continuing medical education (CME), professional practice and revalidation, the history of revalidation, evidence of the effectiveness of CME and revalidation, and challenges to implementing a revalidation program.

By the completion of this section, you should be able to:

- Define and understand the difference between competence, performance, CME, continuing professional development (CPD), professionalism, revalidation, credentialing, and remediation;
- Understand the inherent limitation in self-assessed CPD/CME;
- Describe the evidence base for effectiveness of CME, revalidation, and remediation;
- Describe the challenges in implementing a revalidation scheme; and
- Describe the role of the International Council of Ophthalmology (ICO) and ophthalmology societies in developing revalidation processes.

Relationships Between Medical Training, CME, Professional Practice, and Revalidation

It is important to clearly define terms describing the training and assessment of medical practitioners (Figure 1).
Competence is defined as mastery of relevant knowledge and the acquisition of a range of relevant skills at a satisfactory level, including interpersonal, clinical, and technical components at a certain point of education, usually graduation from a clinical training program. Competence is knowledge based, is only of value as a prerequisite for performance in a real clinical setting, and does not always correlate highly with performance in practice.¹

Performance describes what an individual actually does in a real-life encounter with a patient when applying learned knowledge and skills.¹ Performance is assessed during and following encounters with patients and ideally includes assessment of patient outcomes. Acceptable performance means practising to a standard acceptable to reasonable peers and to the community.²
Professionalism is an attribute required during performance in practice and is defined as adherence to a set of values comprising both a formally agreed-upon code of conduct and the informal expectations of colleagues, clients, and society. The key values, include acting in a patient’s interest, responsiveness to the health needs of society, maintaining the highest standards of excellence in the practice of medicine and in the generation and dissemination of knowledge.\(^3\)

Patient outcomes are the results of interaction between a patient and the health care delivery system (of which the medical practitioner is one component). Indicators include mortality, morbidity, and expenditure, as well as patient-centered indicators of a patient’s assessment of their own health and their evaluation of the care and services they receive.\(^4,5\)

CME is a continuous process of acquiring new clinical knowledge and skills throughout one’s professional life. As undergraduate and postgraduate education is insufficient to ensure lifelong physicians’ competencies, it is essential to maintain the competencies of physicians, to remedy gaps in skills, and to enable professionals to respond to the challenges of rapidly growing knowledge and technologies, changing health needs, and the social, political, and economic factors of the practice of medicine.\(^3\) CME is a necessary but not sufficient component of CPD and revalidation.

CPD is a term used to emphasise the broader nature of a physician’s skills beyond clinical, as well as the development of enhanced expertise while in professional practice. CPD is a process that includes CME.\(^6\) CPD is a documented process, self-directed, includes reflective learning, includes development goals, and incorporates both formal and informal learning.\(^7,8\) CPD varies between individuals depending on type of practice (particularly specialities with interventional procedures), practice interests, and national health needs. CPD programs may include teaching professionalism, audit, and analysis of outcomes.

Revalidation is a process directed by regulatory bodies. It is defined by the International Association of Medical Regulatory Authorities as the process by which doctors have to regularly show that they are up to date and fit to practice medicine. This will mean that they are able to keep their license to practice.\(^9\) Recertification may be used synonymously for revalidation (eg, New Zealand).\(^2\) Revalidation is performed by medical regulatory authorities, sometimes with guidance from medical training bodies (eg, United Kingdom Royal Colleges), and focuses on patient outcomes, peer review, and patient perceptions of care. Revalidation, as a demonstration of performance in practice, ideally takes a work-based rather than knowledge-based (examination) approach. Revalidation can be considered a process rather than an event, and thus has both formative and summative functions.
**Dyscompetence** (often used synonymously with underperformance, although technically different) has no universally accepted definition. Dyscompetence refers to medical practitioners who are not performing to acceptable standards. Dyscompetent practitioners have been estimated as 6–12% of the workforce.\(^{10}\) Factors contributing to underperformance include practitioner age-related cognitive decline, impairment due to substance abuse disorders, and psychiatric illness.\(^{10}\) System-related problems are also likely to contribute to dyscompetence.\(^{11}\) As described below, there is tension between goals of revalidation in demonstrating all doctors are performing in an acceptable manner versus use of revalidation to identify and remediate doctors at high risk of dyscompetence.

**Remediation** is the process of addressing performance concerns (i.e., knowledge, skills, and behaviors) that have been recognized through assessment, investigation, review, or appraisal, so that the practitioner has the opportunity to return to safe practice. It is an umbrella term for all activities that provide help—from the simplest advice, through formal mentoring, further training, up-skilling, and rehabilitation.\(^{12}\) The need for remediation may be identified through concerns regarding performance in practice, professionalism, patient outcomes, CPD activities, or revalidation processes by peers, health care organizations, health service complaint agencies, medical training bodies, medical licensing bodies, and/or revalidation authorities. Remediation may be given informally by peers or by organizations, including medical training bodies, medical licensing bodies, and/or revalidation authorities, but ideally by peers in a collaborative educational based environment.

**Credentialing** is performed by health service organizations and is the formal process used to verify the qualifications, experience, professional standing, and other relevant professional attributes of medical practitioners for the purpose of forming a view about their competence, performance, and professional suitability to provide safe, high quality health care services within specific organizational environments.\(^{13}\) Defining the scope of clinical practice (clinical privileging is used synonymously) follows on from credentialing and involves delineating the extent of an individual medical practitioner’s clinical practice within a particular organization based on the individual’s credentials, competence, performance, and professional suitability, and the needs and the capability of the organization to support the medical practitioner’s scope of clinical practice. Credentialing is performed separately from revalidation by health care organizations, and takes into account specific organizational resources. Credentialing has origins in the patient safety movement.

**History of Revalidation**

Revalidation originated in the United Kingdom during the mid-1990s following the scandal over the high mortality rate of babies undergoing heart surgery at the Bristol Royal Infirmary Children’s Heart Unit. The Bristol Inquiry noted no requirement on medical practitioners to keep their skills and knowledge up to date and no standards for evaluating
performance, and recommended compulsory CPD, periodic appraisal, and revalidation. A subsequent inquiry into the murder of patients by Dr. Harold Shipman found fault with the General Medical Council (GMC) for serving the interests of doctors rather than patients. After further high profile incidents, a report by the UK Chief Medical Officer came to similar conclusions. A white (high level advisory) paper Trust, Assurance and Safety in 2007 recommended regular checks on every doctor’s continuing fitness to practice. The GMC developed the new revalidation process and legislation was introduced in 2010. Revalidation is workplace based, with organizations mandated to resource and support revalidation. The structure is complex with each doctor linked to a Responsible Officer at each workplace and a Professional Support Unit for remediation in place.

Simultaneously revalidation also has origins in the patient safety movement in the United States after a series of high profile cases. The Institutes of Medicine Quality of Health Care in America recommendations included periodic re-examinations and re-licensing of doctors, and development of methods to identify unsafe providers. Revalidation is also influenced by changes in society. There are concerns that knowledge obtained in basic training rapidly becomes out of date. Also, there is increased demand by patients and purchasers of health care for transparent and cost-effective health care delivery. This was demonstrated in a survey of 523 New Zealand patients conducted in 2010, in which 75% would have increased confidence if they knew doctors’ performance had been subject to a regular appraisal or review.

From its diverse origins, revalidation can be seen to have number of different aims: to ensure public trust in doctor competence, to identify and remediate poor performers, and as part of a system to continually improve patient safety. Development and implementation of revalidation processes differs when these aims are differently prioritized. The stakeholders in revalidation processes are foremost patients, but also include CME and CPD providers, health care organizations (who perform independent credentialing), purchasers of health care (patients, health care organizations, insurers), medical and academic training organizations, and medical licensure bodies.

**Evidence of the Effectiveness of CME, CPD, Revalidation, and Remediation**

Limited evidence is available demonstrating the effectiveness of CME, CPD, revalidation, and remediation of doctors found to be dyscompetent. Kirkpatrick’s levels, used to evaluate short-term endpoints in industry training, have limited utility. More appropriate is the hierarchy of outcomes used by Marinopoulos: knowledge, attitudes, skills, practice behavior, and clinical practice outcomes. CPD/CME is thought to have a weak positive effect on physician performance and practice outcomes. CME has been shown to improve knowledge retention, probably more effective when delivered through
interactive sessions\textsuperscript{29} or multiple modalities\textsuperscript{30} rather than didactic lectures. Medical practitioner competence in clinical skills of primary care providers has been shown to improve through CPD/CME intervention.\textsuperscript{31, 32} CME has also been shown to improve short- and long-term practice performance,\textsuperscript{33} but not in many procedural specialties, including cardiology\textsuperscript{34} and ophthalmology, where there is no evidence.

CME and CPD have at their heart the ability of doctors to self-assess their educational needs. Medical students and doctors, however, have been demonstrated to be poor at self-assessment,\textsuperscript{35, 36, 37, 38} leading to inflated or pessimistic self-assessments.\textsuperscript{39} For this reason, further education based on self-assessment cannot be the sole activity required for revalidation, and objective measures are necessary, preferably involving patient outcomes.

The best indicators of success of revalidation processes will include data on patient outcomes; in many jurisdictions, including the UK, it is too early for this data to be available. In the interim multisource feedback,\textsuperscript{40} audit and success of remediation programs can be used as proxy indicators for success of revalidation programs.

Multisource feedback questionnaires are a component of many revalidation programs. A recent systematic review concluded there is little evidence that doctors change their practice following multisource feedback. There is tension between use of multisource feedback questionnaires as a formative element in appraisal and a summative element for revalidation.\textsuperscript{41} There is limited evidence on use of audit data with feedback to improve professional practice; a recent systematic review suggests a small to moderate positive effect.\textsuperscript{42} Limited data is available regarding the success of remediation programs for doctors identified as dyscompetent. Hanna\textsuperscript{43} found improvement in only 1 of 5 physicians after a three-year personalized intensive CME program. Lillis found 75% of 19 doctors in New Zealand performing to an acceptable standard after a one-year remediation program.\textsuperscript{44} Health concerns were common in this cohort of underperforming doctors who did not improve with remediation.

**Challenges in Implementing a Revalidation Process**

Many challenges in implementing a revalidation program can be identified, including ensuring the system is valid and reliable, how best to demonstrate professional performance, the need to individualize assessment, how best to identify high-risk doctors, financial challenges, and leadership and administrative challenges (Figure 2).
Figure 2.
Challenges to implementing a revalidation process

Revalidation processes are high stakes for participating doctors, and the process must be valid and reliable. Unfortunately there is little evidence to support this. Revalidation processes need to be consultative rather than adversarial and to deliver timely natural justice for doctors under investigation for possible dyscompetence. Lengthy and adversarial GMC processes have been suggested to result in the suicide of doctors under investigation. The tension between formative and summative roles in revalidation must be addressed so that doctors who identify areas of their practice to improve (formative) are not punished for this (summative).

Consensus view on how best to demonstrate professional performance appears to be by peer and patient assessment, combined with patient outcomes. This can be viewed as development of a portfolio of activities to support revalidation, although the evidence supporting the use of portfolios in medical education is limited. A recent review summarized key principles and noted: performance is affected by the clinical setting; doctors must be assessed according to established standards; multi-source feedback must
be aimed at quality improvement; audit process should be embedded in workflows; metrics are used to increase validity and should span relevant practice contexts; and the process should focus on what should be assessed, not on what is easy to assess. Although consensus appears to be developing, the process of revalidation varies between countries.\textsuperscript{2, 46, 48, 52, 53, 54, 55}

Revalidation processes must take into account individual practice variation.\textsuperscript{56} Variation in practice develops as a result of national health imperatives, development of subspecialty medicine, and through development of enhanced expertise during clinical practice.\textsuperscript{57} The context of practice also influences behaviors and beliefs of doctors. Unless revalidation is individualized, the process will not be seen as credible by established doctors.\textsuperscript{58}

Identifying and remediating the doctor at risk of dyscompetence is potentially the most cost effective means of promoting trust in doctor competence. There is little evidence regarding accurate identification of the doctor at risk. Schulte et al, reviewed the performance of doctors on the American Board of Family Medicine recertification examinations, and found higher failure rates in a cohort of 8361 family practitioners that was associated with slightly younger doctors in metropolitan practice and solo practitioners.\textsuperscript{59} The country of medical training also affects pass rates.\textsuperscript{60} In the Canadian model, doctors are monitored in cycles varying between one to five years depending on indicators, including practice profile data such as prescribing practices, CME credits, patient encounter data, practice profiles, peer assessment ratings, duration of practice, and age.

Financial challenges relate to the costs of administering revalidation programs, with appropriate cost allocation to stakeholders. There is no data on the true cost of revalidation programs, but it is likely to be high, although varying with program complexity. In the UK revalidation is funded by the profession in registration fees. In New Zealand the profession pays, indirectly via employers or directly, when it is claimed on tax as a work-related expense. The Medical Board of Australia believes the cost of any future revalidation should be paid by the profession through registration fees, however, increases in fees are restricted to cost-of-living indexation, and the process must be cost effective. In many countries, the cost of CME is subsidized by pharmaceutical companies. For example, in the United States in 2010, about $720 million—31\% of CME providers’ total revenue—was subsidized,\textsuperscript{61} and if revalidation develops as a further extension of CPD/CME, then it is possible pharmaceutical companies will be major funders of revalidation programs. It is important that the agenda for revalidation is set by independent regulatory bodies in order to reduce influence of any single stakeholder. Clearly independent regulatory bodies must be administered in a cost effective manner given the challenges of funding health care in both developing and developed countries.

Leadership and administrative challenges include the need for leaders who envision future medical and CME and who possess educational skills, and the need to manage change in
Robust information technology (IT) systems are necessary to identify outlier practitioners and implement and evaluation revalidation. The apparently low pass rates in the American Board of Family Practitioners recertification examinations 2010 to 2012, found to be a statistical anomaly, demonstrates that robust statistical processes are also necessary.\textsuperscript{62}

Important contributors to revalidation processes that are out of the control of both the doctor being assessed and the revalidation authorities, include upstream initiatives, downstream consequences, health care environment, and possibly doctor-related factors. Upstream initiatives include medical school curricula, and support of patient safety, patient outcomes and communication; high quality, evidence-based CME and CPD; robust audit programs; development of appropriate patient standards and stakeholder relations, particularly ensuring the views of patients and their caregivers are considered. Downstream consequences include development of effective means of feedback and remediation mechanisms for doctors found to be performing poorly. These elements are critical to effective revalidation and ultimately patient outcomes, but are often out of the control of revalidation authorities. Performance is also affected by the health care environment in which doctors work.\textsuperscript{14,63} Robust mechanisms for analysis of complaints, protection of whistle-blowers, and research into systems rather than individuals are necessary, again usually out of the control of the revalidation authorities. The limited experience reported regarding effectiveness of remediation programs raises the possibility that some doctors are not able to improve, frequently due to underlying health issues.\textsuperscript{43,44} (Table 3)

Ophthalmology has a proud history of promoting high standards of patient care through education. The International Council of Ophthalmology (ICO) dates back to 1857 when 150 ophthalmologists from 24 countries convened in Brussels for the first World Ophthalmology Congress. Participants in the Congress founded the ICO in 1927 in
Scheveningen, Holland. The American Board of Ophthalmology was the first Board formed in 1917, and a founding member of the American Board of Medical Specialties in 1933.

Ophthalmology is a specialist surgical discipline. While many of the competencies of a medical practitioner are generic,\textsuperscript{57, 65} ophthalmologists require specific ongoing education in medical and procedural aspects of ophthalmology. As noted, however, there is no evidence regarding effectiveness of CME, CPD, or revalidation in patient outcomes for surgical disciplines in general, or ophthalmology specifically. Ophthalmology is rapidly developing subspecialties and any programs will need to recognize variation in an individual’s scope of practice.

The ICO is an educational body and will not be a revalidation authority. The ICO is in a unique position, however, to provide leadership in many of the upstream initiatives, such as development of robust CPD/CME programs, including audit and review mechanisms designed to achieve patient outcome measures and peer review (Table 1).

**Table 1. Potential Role of the ICO in Revalidation**

<table>
<thead>
<tr>
<th>Stage of Education</th>
<th>ICO Role(s)</th>
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<tbody>
<tr>
<td>Medical school</td>
<td>Curriculum</td>
</tr>
<tr>
<td>Ophthalmology vocational training</td>
<td>Curriculum, Fellowship examinations</td>
</tr>
<tr>
<td>Practicing ophthalmologists</td>
<td>Practice standards, including subspecialties</td>
</tr>
<tr>
<td>CPD/CME</td>
<td>Curriculum, Maximize learning value of activities teaching knowledge and nontechnical skills, Develop training in technical skills, including simulation, Design CPD/CME frameworks, Promote reflection, including personal development plans, Assist in developing CPD teachers</td>
</tr>
<tr>
<td>Outcome indicators</td>
<td>Promote audit, Develop peer and patient review mechanisms, Develop effective feedback mechanisms</td>
</tr>
<tr>
<td>Remediating ophthalmologists</td>
<td>Assist in individualized program design</td>
</tr>
<tr>
<td>Overall</td>
<td>Promote leadership in ICO and ophthalmology, Set research agenda, including validity and reliability of activities, Advocacy regarding education and its funding, Stakeholder relations</td>
</tr>
</tbody>
</table>
Future Directions

Over time CME has gradually changed into CPD and appears to be changing into revalidation. The revalidation movement has been driven by scandals in the UK, which have compelled doctors to demonstrate acceptable performance standards; the patient safety movement in the United States; and changing societal expectations for transparency and accountability in health care. This represents a fundamental shift from long standing professional self-regulation. However, evidence that revalidation processes improve patient outcomes, and in a cost effective manner, is scanty and further research is necessary.

CPD/CME programs are inherently limited by doctors’ poor ability to assess their performance, and this alone cannot function as the basis of revalidation. Further improvement in CPD programs to increase effectiveness of CME activities, incorporate analysis of patient outcomes, peer review and patient review, as well as improved mechanisms to identify and remediate doctors at risk of dyscompetence may fulfill many of the desired outcomes of revalidation programs while minimizing additional medical regulation. The ICO is in a unique position to take a leadership role in this process.

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4. What is the Role of the Personal Learning Plan?
   Helena P. Filipe and Karl C. Golnik

5. What is the Role of the Audit?
   Helena P. Filipe and Karl C. Golnik

6. What is the CPD Cycle? How should it be embedded in an Effective CPD/CME Plan?
   Helena P. Filipe and Karl C. Golnik

   Helena P. Filipe, Andries Andriessen Stulting, Karl G. Golnik

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Chapter 4. What is the Role of the Personal Learning Plan?

Summary

This chapter describes the importance of a personal learning plan (PLP) for building effective continuing medical education (CME) and continuing professional development (CPD).

By the completion of this section, you should be able to:

- Explain what a PLP represents; and
- Describe the PLP’s step-by-step structure.

Reflection on professional life leads to the recognition of learning gaps, which should be addressed and bridged by the practicing physician. The understanding of one’s own thought processes or “metacognition” plays an important role in CPD as it promotes a better understanding of professional needs and the best strategies to fulfill them.¹

PLPs formalize learning processes that should take place in every physician’s practice.² The International Council of Ophthalmology (ICO) Task Force on Continuing Professional Development has adapted and proposed a PLP template to guide the physician (Figure 1.)

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Figure 1. Adapted from the ICO’s suggested template for a PLP.
Step 1. The first step in the PLP design consists of a professional needs assessment to identify learning gaps.

Step 2. The learning gaps identified in Step 1 lead to establishing a learning strategy best suited to solve the knowledge gaps found in the professional practice.

Step 3. The final step in the PLP design consists of submission of a report documenting Steps 1 and 2, and a personal reflection about what has been accomplished and its importance in the physician’s practice.

Steps 1 and 3 are based on reflection and reasoning—first about what should be learned and why (Step 1)—and then how well and why it was learned (Step 3). Step 2 focuses on the best process to gain the knowledge needed.

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References


Chapter 5. What is the Role of the Audit?

Summary

This chapter describes the importance of the clinical audit as a useful tool to effectively assess continuing medical education (CME) and continuing professional development (CPD) and show a physician’s accountability.

By the completion of this section, you should be able to:

- Explain the rationale behind clinical audits;
- Describe the clinical audit cycle;
- Explain how to develop a clinical audit; and
- Explain the difference between clinical audits and clinical research.

The Clinical Audit Rationale

The United Kingdom’s National Institute for Health and Clinical Excellence (NICE) defines a clinical audit as: “a systematic staged cycle or spiral quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the review of change. Aspects of the structure, process, and outcome of care are selected and systematically evaluated against explicit criteria. Where indicated changes are implemented at an individual, team, or service level, and further monitoring is used to confirm improvement in health care delivery.”

The Clinical Audit Process

The International Council of Ophthalmology (ICO) has proposed a clinical audit cycle based on the guidelines of the National Institute of Clinical Excellence, the National Health Service, and the Royal Australian College of General Practitioners to guide in the development of a clinical audit. This cyclic evaluation method consists of five steps, each encompassing specific objectives that are presented below.
1. **Identify the Problem**

Determine the rationale for a clinical audit. Topic audits can generally be found in areas where standards and guidelines exist, where problems have been found in practice, or where there is high volume, high risk, or high cost involved in health care delivery.\(^7\)

Step 1 identifies the area where improvement can be made (eg, appropriate treatment of diabetic macular edema in my practice).

2. **Set Criteria and Standards**

Undertake a literature review for evidence explicitly defining current best professional practice. Audit criteria must be best practice and evidence-based. Recommendations from clinical practice guidelines may be useful to develop criteria and standards. Criteria are explicit statements defining what the outcomes of care will measure. Standards as the threshold of expected compliance for each criterion will define the agreed target for excellent performance.\(^8\)

3. **Collect Data**
Observe the practice. Data collection may be retrospective, concurrent, or prospective. Data collected must exclusively relate to the audit’s objective. Ethical and confidentiality issues, such as what data will be collected, who will collect the data, and where the data shall be available should be considered.

4. Compare Practice with Standards and Report

Analyze data and report on audit findings. Compare collected data results to the previously set criteria and standards. Confirm the presence of an opportunity to improve. If no gaps are found between performance measurements and defined standards, the audit will end at this stage. If a gap is encountered, the audit will proceed. A report of findings should be produced at this stage.

5. Implement Changes

Provide and implement an action plan for change, monitor progress of improvement, and re-audit if necessary. Develop and implement an action plan to correct the deficiency. Follow the plan and re-audit if necessary to assess the impact of change by comparing results against the standards set in Step 2.

Clinical Audits versus Clinical Research

Both clinical audits and clinical research aim at improving quality in health care. They have methodological similarities, but they also have distinct differences:

- **Clinical Audits** measure the gap between contemporary best practice for a particular clinical problem and what actually happens in a particular service.

- **Clinical Research** is directed at filling the gap between what is known and what needs to be known to provide high quality health care as an effort to extend the frontiers of current professional knowledge.

Conclusion

Clinical audits are excellent for measuring effectiveness and for ensuring that best practice is being followed. Clinical audits are an important component of medical professional accountability.⁴

Helena P. Filipe, MD, MSc, and Karl C. Golnik, MD, Med

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Chapter 6. What is the CPD Cycle? How should it be embedded into an Effective CPD/CME Plan?

Summary

This chapter explains the rationale of the continuing professional development (CPD) cycle, and how it facilitates effective lifelong learning. The concepts of “learning gap,” “learning intervention,” and the relevant assessment process are described as cornerstones of effective CPD. The CPD process is segmented in four cyclic stages, and considerations as how to fulfill each stage and attain the next stage are provided.

By completion of this section, you should be able to:

1. Explain principles of effective CPD;
2. List the four stages within the CPD cycle; and
3. Appraise the meaning and relevance of each CPD stage to three sequential questions:
   a. What will I learn? Explain how to identify learning needs
   b. How will I learn? Describe methods to plan and learn
   c. How well have I learned? Explain how to assess CPD

Principles of Effective CPD

Although definitions for CPD abound, the process is usually described as cyclic, ongoing, comprehensive, systematic, self-directed, practice-needs centered, outcomes oriented, and following adult learning principles. CPD comprises a wide array of learning activities, formats, and venues other than those originally considered in continuing medical education (CME) that encompassed medical knowledge and updating of skills. CPD expands this scope to include collaboration, communication, professionalism, scholarship, leadership, and health advocacy. A “good doctor” develops and demonstrates such attributes and roles, and in doing so, justifies how physicians are accountable to society.

CPD improves practice performance and patient outcomes. Effectiveness is facilitated when professionals are able to determine their own learning needs through reflection within their practice plan, experience a CPD activity, and finally assess the outcome of such a process in their practice.

The Four Stages Within the CPD Cycle

The CPD cycle essentially involves four stages:
1. **Reflection**: Identification of a learning gap based on patients seen in practice.

2. **Planning**: Selection of the best learning format and time to eliminate the learning gap.

3. **Learning**: Undertaking the chosen learning intervention

4. **Assessment**: Evaluation and follow up of new learning

These CPD stages can be conceptually organized around three sequential questions triggered by a learning gap:

   a. What will I learn?
   
   b. How will I learn?
   
   c. How well have I learned?

**Reflection** (CPD cycle stage 1) will provide the solution to answer the first question. **Planning and learning** (CPD cycle stages 2 and 3) are appropriate to answer the second question. **Assessment** (CPD cycle stage 4) answers the third question, closes one cycle, and usually initiates a new one (Figure 1).⁸

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**Figure 1.** CPD cycle stages (in blue) and related professional behaviors’ questions (in red). Note that documentation is a central activity in the cycle.
The Meaning and Relevance of Each CPD Stage Related to Three Sequential Questions


Reflection

CPD promotes a reflective approach to learning and has similarities to Schon’s and Kolb’s suggested learning cycles. Schon puts emphasis on two types of reflection that occur in daily practice:

• **Reflection in-action** or “the process that allows us to reshape what we are working on, while we are working on it,” as when we redirect our surgical strategy if an intra-operative complication occurs.

• **Reflection on-action** or “thinking back on what we have done in order to discover how our knowing-in-action may have contributed to an unexpected outcome,” as when we think about the outcomes of a certain surgical technique we have been performing.9

Kolb believes that effective learning is a cyclic process comprising four stages from which concrete experience (1) is necessary to advance learning. Reflection (2) on the experience will lead to a conceptualization (3) that will be tested (4) in future experiences.10

A learning need is a gap between current personal competencies/population health status and the desired state and requires reflection to be identified.11 Learning gaps may be found in several ways (Table 1).11

<table>
<thead>
<tr>
<th>Table 1. Methods to Identify Learning Gaps in Clinical Practice, According to the Good CPD Guide 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Experience with direct patient care, such as knowledge gaps, clinical diaries, innovations in practice, and knowledgeable patients.</strong></td>
</tr>
<tr>
<td><strong>Interactions within the clinical team and department, such as clinical meetings, management roles, and mentoring.</strong></td>
</tr>
<tr>
<td><strong>Nonclinical activities, such as academic activities, readings, conferences, press and media, research, and teaching.</strong></td>
</tr>
<tr>
<td><strong>Formal approaches to quality management and risk assessment, such as audits, patient satisfaction surveys, and management roles.</strong></td>
</tr>
<tr>
<td><strong>Specific activities directed at needs assessment, such as self-assessments regarding training needs, clinical incident surveys, and revalidation systems.</strong></td>
</tr>
<tr>
<td><strong>Peer review, such as informal contacts between colleagues, development appraisal discussions, and 360° assessments.</strong></td>
</tr>
</tbody>
</table>
Learning gaps may be general or specific, may be based on a past experience or in preparation for future roles. Self-directed learning (SDL) occurs as a professional need for personal learning to change in practice—a decision to learn a skill, to anticipate a problem, to gain experience, or simply to feel more confident. Knowles defines SDL as a process in which individuals take the initiative in finding out their own learning needs, formulating personal goals, identifying available learning resources, choosing adequate learning strategies, and assessing outcomes.

2. How Will I learn? Methods to Plan and Learn

Planning

Learning context and content management must be self-directed by the physician. Planning involves thinking about how to meet customized learning needs and should follow a personal learning plan (PLP). In addition, paper-based or online templates can be made available by professional societies so that physicians can report their progression. Documenting reflective learning is a personal responsibility for an effective CPD and should be encouraged. The ICO has suggested a question template to guide doctors wanting to build a PLP as part of their professional development.

The PLP design must be tailored according to the evolution and ambition of each physician’s practice and should be monitored and redirected according to personal needs, with the ultimate focus being to provide the best possible health care for the surrounding community. Selection of learning content, format, and venue will depend upon each physician’s spheres of practice, personal preference, and learning purpose appropriateness.

Action

Attendance at formal CME events is only one method of a physician’s lifelong learning. Integrating both SDL and practice-based experiences into formal education will suggest the most effective methods of learning. Practice-based learning is the process whereby doctors use their practice environments and experiences to identify opportunities for learning. Thus, there has been a shift from CME’s emphasis on information dissemination to CPD’s demonstration of behavior change in clinical practice.

3. How Well Have I Learned? How to Assess CPD

Evaluation

More than a process to meet accreditation requirements or for awarding credit, assessment should be envisioned as maximizing the effectiveness of the learning process. Assessing CPD programs and systems’ effectiveness is indispensable, and it
should be systematic and iterative, encompassing the spectrum from the learning event to population health status.\textsuperscript{20}

Based on the established Kirkpatrick’s evaluation model, Dixon defined four CME levels of assessment aligned with learning objectives and content\textsuperscript{20, 21}:

\begin{itemize}
  \item \textbf{a. Perception and Satisfaction}
  
  A structured interview or a survey can address this evaluation level. After a CPD activity the following questions should be considered:
  \begin{itemize}
    \item Has content met perceived learning gaps and learning objectives?
    \item Were teaching methods interactive, effective, and in accordance to learning objectives?
    \item What future topics would be interesting to learn? How are learners thinking to implement new learning in practice?
  \end{itemize}

  \item \textbf{b. Competencies Acquisition}
  
  After a group-learning activity, knowledge can be assessed by a set of multiple-choice questions. A pre- and a post-test should be considered to assess participant’s preexisting knowledge and to prove that new learning resulted from the CPD experience. For learning events aimed at developing skills or professional attitudes, participants are encouraged to try self-assessment tools, such as standardized virtual patients and simulators.

  There are multiple assessment methods regarding each dimension (eg, knowledge, skill, behavior, competency) under evaluation. Factors such as expense, validity, reliability, acceptability, and feedback opportunity should be considered when choosing the assessment strategy.\textsuperscript{8, 13}

  CPD participants should be told in advance about assessment strategies and be informed about results in a timely manner since perceptions of educational experience’s value change with time.\textsuperscript{18}

  \item \textbf{c. Professional Performance}
  
  This level assesses the translation of new learning (knowledge, skills, and professional attitudes) into behavior changes in medical practice. Applying and practicing what was learned leads to reinforcement and dissemination of new learning.

  Chart reviews, patient surveys, weblogs, portfolios, and clinical audits can demonstrate what physicians have learned and applied to their clinical practice, demonstrating CPD effectiveness. A clinical audit can be defined as a quality improvement process that
seeks to improve patient care and outcomes through systematic review of care against explicit criteria and the implementation of change.\textsuperscript{22}

\textbf{d. Health Care Outcome}

This level informs about the impact that new learning has brought to health care delivery. Several measures can be taken: assessing patients’ outcomes (complication rates and symptom relief), establishing practice patterns, patient referral and prescription practice, and finally, optimizing use of resources. Clinical audits are also useful to assess patient outcomes.

Two more levels of assessment can be added to Dixon’s classic evaluation model:

1. \textbf{Participation at an Educational Event}

Assessing adherence to a CPD/CME group learning activity by considering a participant’s attendance and their active participation will help determine if the learning activity requires future redesign.\textsuperscript{23}

2. \textbf{Return Of Investment}

A learning event’s cost-effectiveness must be ascertained. Increasing constraints on health care budgets have produced more pressure on CPD providers’ demonstration that their learning intervention is effective.

A change in practice should be the outcome of any learning event.\textsuperscript{15} Every physician should reflect on how a learning intervention has facilitated a change in his or her practice (Table 2).

\textbf{Table 2. Questions Physicians Should Reflect Upon After Participating in a Learning Event.}

<table>
<thead>
<tr>
<th>Question</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Was the learning gap addressed?</td>
<td></td>
</tr>
<tr>
<td>Was the chosen learning format the most appropriate to reach the learning objectives?</td>
<td></td>
</tr>
<tr>
<td>Was there activity engagement?</td>
<td></td>
</tr>
<tr>
<td>Did behavior changes occur in clinical practice?</td>
<td></td>
</tr>
<tr>
<td>Did the behavior changes affect the working organization and/or the health of the surrounding community?</td>
<td></td>
</tr>
<tr>
<td>Were there opportunities to experience the new learning in a practice setting, leading to its reinforcement?</td>
<td></td>
</tr>
<tr>
<td>Were there opportunities to disseminate the new learning with colleagues?</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

Good CPD is inextricably intertwined with effective lifelong learning and the highest standards of medical care. The CPD cycle provides a solid foundation for every physician to facilitate effective professional growth. Designing a personal learning plan and reporting progression are essential components of good CPD practice. Awareness of the CPD cycle by both physicians and professional societies should result in effective CPD and medical professional accountability.

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This chapter describes the central role of the portfolio to report and monitor effective continuing professional development (CPD) and continuing medical education (CME).

At the completion of this section, you should be able to:

- Explain the concept of a portfolio; and
- Describe the importance of creating and maintaining a portfolio.

Professionalism requires physicians to keep their knowledge and skills updated to meet societal needs and progress as lifelong learners. A portfolio is a document that provides evidence of CPD.

A portfolio is a purposeful record of what its creator has to offer in terms of range, quality of knowledge, and level of skill attainment.\(^1\),\(^2\),\(^3\) The portfolio should include one’s collection of content and selection criteria, evidence of accomplishments, and self-reflection that generally encompasses assessment of progress in updating knowledge, identification of professional gaps, and future learning plans to address those gaps. Items in a portfolio might include physician peer review, workplace-based assessments, reflective reports, sign-off documents, interesting cases, teaching/learning courses attended, audits undertaken, and certifications on e-Learning modules.

Portfolios differ from a curriculum vitae (CV) in terms of depth, details, and structure. A CV is usually designed as an employment summary that includes qualifications and personal details, whereas a portfolio presents professional achievements, activities that update knowledge, and competencies required for training.\(^4\) In particular, portfolios should have an aspect of self-reflection. Good questions to guide self reflection are: What have I accomplished thus far? What have I learned that will lead to a future change in practice? What further learning needs can I find in my practice? What action plan for meeting those gaps have I designed?\(^5\)

An e-portfolio demonstrates an individual’s professional progression through a web-based collection of documents: reflections, resources, demonstrations, accomplishments, and related time periods. Advantages of an e-portfolio are in its systematized, simple-to-use mode, and the opportunity it conveys for exchanging ideas and feedback between owner and those invited to interact.\(^6\),\(^7\) Organizations are increasingly adopting their own e-portfolio systems, such as the free, user-friendly *British Medical Journal* online portfolio.\(^8\)
Portfolios are valuable learning and assessment tools used to plan and document CPD activities while simultaneously offering evidence for appraisal, peer review, and revalidation, thus demonstrating a medical professional’s accountability.

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References


Section C. CPD/CME Educators

8. CPD Educators
   Heather G Mack

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Chapter 8. CPD Educators

Summary

There has been remarkably little work describing continuing medical education (CME) and continuing professional development (CPD) educators. This chapter describes trends affecting CPD educators, their sources, methods, needs and attributes, and development needs, mainly extrapolated from information regarding other medical educators. Future research needs are described.

At completion of this reading, you should be able to:

- Describe the sources of CPD educators;
- Describe the teaching methods used by CPD educators;
- Describe the needs and attributes of CPD educators; and
- Describe the development needs of CPD educators.

Introduction

CME can be defined as a continuous process of acquiring new knowledge and skills throughout one's professional life. As undergraduate and postgraduate education is insufficient to ensure lifelong physicians' competencies, it is essential to maintain the competencies of physicians, to remedy gaps in skills, and to enable professionals to respond to the challenges of rapidly growing knowledge and technologies, changing health needs and the social, political, and economic factors of the practice of medicine.¹

The term CPD is used to emphasize the broader nature of a physician's skills beyond clinical and the development of enhanced expertise while in professional practice. CPD is a process that includes CME.² CPD is a documented process, self-directed, includes reflective learning and developmental goals, and incorporates both formal and informal learning.³,⁴ As described by the Royal College of Physicians and Surgeons of Canada (RCPSC), CPD is part of the competence continuum throughout the learner's professional medical life⁵. Furthermore, demonstration of participation in CPD is increasingly required by external bodies as part of maintenance of professional licensure and/or medical registration.
CPD educators play a critical role in delivering educational content, setting standards, and promoting an environment in which self-directed and reflective learning can occur. Despite their importance, there have been remarkably few studies on CPD educators. This chapter aims to review trends affecting CPD educators, sources of CPD educators, CPD teaching methods and settings, CPD educators’ needs and attributes, and how CPD teachers can be developed. Most of the information is extrapolated from medical teachers in different parts of the medical education continuum.

**Trends Affecting CPD Educators**

There is a large gap in the number of ophthalmologists worldwide, in both developed and developing countries. CPD clearly plays a role in enhancing expertise of practicing ophthalmologists to meet this need, for example, training nonsurgical ophthalmologists in cataract surgery. Increase in medical and ophthalmic knowledge and technology continues rapidly, with PubMed Medline citations growing at 5.6% annually between 1997–2006, giving a doubling time of 13 years. Publication using new channels, such as conference proceedings, open archives, and home pages is also thought to be growing rapidly. The rapid increase in knowledge also has potential medico-legal implications for practicing ophthalmologists. CPD plays a vital role in maintaining and increasing skills for practicing ophthalmologists in this environment of gaps in technical skills and in expanding medical knowledge.

The discipline of CPD, as part of medical education, is also evolving, although slower than other areas of medical education. Swanwick identified three trends driving development of postgraduate medical educators: professionalization of medical education, increasing accountability, and pursuit of educational excellence, all of which are evident in CPD. The medical education movement towards competency-based education is clearly important for developing skills during professional practice but has not been well studied in the CPD setting. Increased interest in the academic field of CPD has been facilitated by the development of professional bodies, including the Alliance for Continuing Education in the Health Professions and the Society for Academic Continuing Medical Education, which conduct conferences and publish scholarly work through *The Journal of Continuing Education in the Health Professions*.

CPD is also increasingly subject to regulation by external bodies, such as the United States of America Accreditation Council for Continuing Medical Education (ACCME), American Medical Association (AMA), and the European Accreditation Council for Continuing Medical Education (EACCME). It is important for standards in ophthalmic continuing education to be set by the ophthalmic profession, and in the process meet regulator’s requirements, rather than dictated solely by regulatory bodies.
The medical workforce is increasingly mobile—and transportable medical and ophthalmic qualifications are desirable. Global harmonization of medical education and CPD is useful in enabling this process. Reciprocal recognition agreements are in place between the EACCME, AMA, and RCPSC for CPD activities. Supranational bodies, such as the International Council of Ophthalmology (ICO), and the European Board of Ophthalmology play an important role in setting standards and promoting reciprocal recognition of CPD activities and providers. Harmonization of CPD is discussed at length elsewhere in this manual.

Sources of CPD Educators

Internationally, sources of CPD educators are diverse (Table 1), ranging from full-time university employees to part-time or voluntary, community-based ophthalmologists. This reflects different models of CPD and its financing worldwide. It is likely most educators are not specifically paid for their work as CPD educators, with university employees focused on medical students and professional bodies and hospitals focused on ophthalmology trainees. Some visiting speakers are paid by commercial sponsors when it is important that control of educational content is in the hands of the speaker rather than the sponsor, which is discussed at length in Chapter 10. Some CPD educators may not perceive themselves as such, for example, full-time academic faculty may view themselves as scientists presenting their results with CPD an incidental outcome. CPD educators undertake professional development activities in both ophthalmology and teaching, and can therefore at times be both a CPD educator and a CPD participant. Diverse sources for CPD educators, with a large voluntary component, make it difficult to develop teaching standards and a sense of engagement with institutions and departments to which they may be affiliated.

Table 1. Sources of CPD Educators

<table>
<thead>
<tr>
<th>Educator</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time university employee (tenured)</td>
<td>• Professor of Ophthalmology or Medicine</td>
</tr>
<tr>
<td></td>
<td>• Attending faculty</td>
</tr>
<tr>
<td></td>
<td>• Academic physician</td>
</tr>
<tr>
<td>Full-time professional body employee</td>
<td>• Employee of UK Post Graduate Deanery</td>
</tr>
<tr>
<td></td>
<td>• Employee of professional ophthalmology</td>
</tr>
<tr>
<td></td>
<td>association</td>
</tr>
<tr>
<td>Full-time hospital employee</td>
<td>• Hospital consultant</td>
</tr>
</tbody>
</table>
ophthalmologist
• Medical trainer
• Preceptor
• Clinical teacher

Full-time hospital employee trainee
• Participant in ophthalmology training program

University employee (nontenured)
• Adjunct faculty
• Contingent faculty
• Part-time faculty
• Clinical teacher
• Clinical tutor

Part-time voluntary university affiliate
• Honorary Clinical Senior Lecturer, Department of Ophthalmology, University of Melbourne

Part-time voluntary community-based ophthalmologist

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**Educational Methods and Providers**

Educational methods used by CPD educators are also diverse (Table 2). Meetings can be live or technology-facilitated webinars. CPD educators work with a diverse variety of CPD providers (Table 3), with teaching settings that include university medical schools, teaching hospitals, professional societies, conference venues, and ophthalmology clinics in the community. A recent survey of CPD of European Union (EU) dentists confirmed the diversity of providing organizations quality and accreditation to offer CPD points.19

**Table 2. Overview of CPD Educational Methods**
*Adapted*24,20,21

<table>
<thead>
<tr>
<th>Educational Method</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audience response systems</td>
<td>Type of interaction associated with the use of audience response systems. It addresses knowledge objectives (used in combination with live lectures or discussion groups).</td>
</tr>
<tr>
<td>Case-based learning</td>
<td>Addresses high order knowledge and skill objectives. Examples include hospital morbidity-mortality meetings, grand rounds, case conferencing, audit review meetings, problem-based learning.</td>
</tr>
<tr>
<td>Demonstration</td>
<td>Involves teaching a technique, usually procedural.</td>
</tr>
</tbody>
</table>
Preferably using recordings, but live demonstrations occasionally used.

<table>
<thead>
<tr>
<th>Discussion group</th>
<th>Addresses knowledge, especially application or higher order knowledge.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feedback</td>
<td>Addresses knowledge and decision making.</td>
</tr>
<tr>
<td>Lectures</td>
<td>Lectures address knowledge content. Given to varied audiences including local ophthalmologists, international conference, as visiting professor tour.</td>
</tr>
<tr>
<td>Mentor</td>
<td>Personal skills developmental relationship in which an experienced clinician helps a less experienced clinician. It addresses higher order cognitive and technical skills.</td>
</tr>
<tr>
<td>Observership</td>
<td>A form of clinical experience under supervision that addresses skill, knowledge, decision making, and attitudinal objectives.</td>
</tr>
<tr>
<td>Programmed learning</td>
<td>Aims to manage clinician learning under controlled conditions. Addresses knowledge objectives sequentially.</td>
</tr>
<tr>
<td>Readings</td>
<td>Reading addresses knowledge content or background for attitudinal objectives. Includes journals and searching online.</td>
</tr>
<tr>
<td>Role play</td>
<td>Addresses skill, knowledge, and affective objectives.</td>
</tr>
<tr>
<td>Simulation</td>
<td>Addresses knowledge, team working, decision making, and technical skill objectives.</td>
</tr>
<tr>
<td>Standardized patient</td>
<td>Addresses skill and some knowledge and affective objectives. Usually used for communication and physical examination skills training and assessment.</td>
</tr>
<tr>
<td>Teaching-on-the-run</td>
<td>Teaching in brief encounters, usually in a clinical setting. Addresses higher order knowledge and decision making.</td>
</tr>
</tbody>
</table>

**Table 3. CPD Providers in Ophthalmology**

*Adapted* 19

<table>
<thead>
<tr>
<th>CPD provider</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>University medical school</td>
<td>University of Melbourne Department of Ophthalmology</td>
</tr>
<tr>
<td>University-affiliated teaching hospital</td>
<td>Royal Victorian Eye and Ear Hospital</td>
</tr>
<tr>
<td>Professional ophthalmology</td>
<td>Royal Australian and New Zealand College of</td>
</tr>
</tbody>
</table>
As a unique element of medical education, clinical education can occur in the presence of patients, where the teacher has dual responsibilities of patient care and teaching. Teaching can also be informal, such as clinical teaching-on-the-run, prompting experiential and reflective learning in a clinical-based setting or by key opinion leaders (i.e., physicians who influence their peers' medical practice) in a meeting of ophthalmologists.

The diversity of methods and providers makes it difficult to quantitate CPD teaching. The usual measure is time duration, with one point per hour allocated. This does not reflect quality or time spent in reflection, hence the disparaging term, chair time. Some CPD programs, such as the CPD program of the Royal Australian and New Zealand College of Ophthalmologists, differentiate teaching that promotes reflection as level 2 or a similar term.

**Needs of CPD Educators**

There are no published needs analyses of CPD teachers. Studies have shown need for formal instruction in teaching and assessment/appraisal skills for full-time hospital employees and ophthalmology trainees, and emphasise the need for communication skills. A needs analysis of medical school faculty highlighted humanistic needs, including on-going learning, work-life balance, and finding meaning in their work, with younger faculty expressing the need for mentoring, scholarship, research, and career planning. Similar humanistic needs were found by Magen and Ley who found voluntary part-time medical school faculty members to be internally motivated to teach, and appreciative of...
receiving acknowledgement and teaching-excellence awards in recognition of their work. Wagner et al\textsuperscript{32} found academic faculty members value membership in a medical school learning community.

A study comparing needs of medical school faculty with their perceived needs by senior administrators found a marked discrepancy, with senior administrators prioritizing time management, institutional outlook, and teamwork as well as improved teaching, research, and clinical practice in contrast to the humanistic needs expressed by the faculty members.\textsuperscript{29}

Extrapolating these studies to CPD educators suggests needs for formal education in teaching, assessment, and communication; understanding of different models of medical education along with generational differences in learning styles (eg, baby boomers, Gen X, Gen Y), and planning of the educator’s scholarly activity, personal growth, and career. CPD educators who teach ophthalmic procedures are likely to also need specific training in how to teach surgery. Future needs analyses of CPD educators will need to survey both teachers and administrators.

In response to perceived needs of CPD educators, the ICO has developed resources, including a website for Ophthalmic Educators\textsuperscript{33} and Conferences for Ophthalmic Educators—one-day workshops that provide tools for effective teaching and assessment, held in conjunction with supranational ophthalmology society meetings. These resources cover the spectrum of ophthalmic educators, rather than focusing solely on CPD educators, and do not offer planning on educators’ scholarly growth and career.

**Attributes of CPD Educators**

Attributes of CPD educators can be assessed by their audience, educators themselves, and by educational experts. There are no published studies on attributes of CPD educators; the following is data from other parts of the medical education continuum.

From the perspective of medical students\textsuperscript{34, 35} and ophthalmology trainees,\textsuperscript{36} cognitive and noncognitive skills, as well as personality traits, are important attributes of clinical teachers (Table 4). Validated tools for evaluating clinical teachers of medical students include the Stanford List\textsuperscript{37} and its later revisions, including the Augmented Stanford Faculty Development Program Instrument\textsuperscript{38}, the Cleveland Clinical Teaching Effectiveness Instrument\textsuperscript{39} and the Maastricht Clinical Teaching Questionnaire\textsuperscript{40}. It is important to note that students have responsibility in clinical learning, and clinical teachers and students have a combined responsibility for optimizing acquisition of clinical skills \textsuperscript{41} (Table 5). There are no validated tools for assessment specifically of CPD educators, or studies of
the responsibility of CPD learners, these can only be extrapolated from medical school clinical teachers and their students.

**Table 4. Cognitive and Noncognitive Attributes of Clinical Teachers**

<table>
<thead>
<tr>
<th>Cognitive</th>
<th>Noncognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is knowledgeable</td>
<td>Is enthusiastic</td>
</tr>
<tr>
<td>Demonstrates clinical skills</td>
<td>Is stimulating</td>
</tr>
<tr>
<td>Is well organized</td>
<td>Is encouraging</td>
</tr>
<tr>
<td>Has excellent communication skills</td>
<td>Creates a positive, supportive learning environment</td>
</tr>
<tr>
<td>Provides feedback</td>
<td>Models professional characteristics</td>
</tr>
<tr>
<td>Explains concepts clearly</td>
<td>Focuses on learner’s needs</td>
</tr>
<tr>
<td>Sets goals and expectations</td>
<td>Interacts positively with students</td>
</tr>
<tr>
<td>Provides direct supervision</td>
<td>Listens</td>
</tr>
</tbody>
</table>

**Table 5. Responsibilities of Clinical Teachers and Students**

<table>
<thead>
<tr>
<th>Clinical Teacher</th>
<th>Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge of developmental level</td>
<td>Attention and concentration</td>
</tr>
<tr>
<td>Task definition and deconstruction</td>
<td>Effort</td>
</tr>
<tr>
<td>Management of cognitive load</td>
<td>Reflection</td>
</tr>
<tr>
<td>Observation</td>
<td>Repetition</td>
</tr>
<tr>
<td>Feedback</td>
<td>Perseverance</td>
</tr>
</tbody>
</table>

From the perspective of medical school faculty, clinical knowledge of medicine, educational assessment of learners, and knowledge of general principles of teaching are important. Harden and Crosby elaborated this to twelve roles of the teacher. A more recent study similarly found that faculty view the top three desirable qualities of an effective teacher to be knowledge of subject, enthusiasm, and communication skills.

A study from the perspective of educational experts found discrepancy between views of medical school faculty and experts in teachers' feelings regarding their professional identity and the organizational culture.
By extrapolation, desirable attributes of CPD educators include medical knowledge in their subject area, education and teaching skills, and noncognitive skills. CPD educators need to understand the needs of their students and the culture in which they are teaching. Future surveys will need to include CPD learners, CPD teachers, and administrators, as each group may have different views on the desirable attributes of educators.

**Development of CPD Educators**

There are no published studies on development of CPD educators, few evaluation tools to determine how well CPD educators are teaching, and no evidence that good CPD teaching produces better practicing ophthalmologists and better public health outcomes than that of poor CPD teaching.

The US Accreditation Council for Continuing Medical Education (ACCME) is one of the few organizations formally promoting good quality CPD teaching. One of the responsibilities of the ACCME is to foster the development of methods for measuring the effectiveness of continuing medical education and its accreditation. Criterion 11 for provider accreditation requires that the provider analyzes changes in learners (competence, performance, or patient outcomes) achieved as a result of the overall program's activities/educational interventions. This data is difficult to collect and validate. A pilot study demonstrated knowledge acquisition, with variable sustainment of knowledge over a nine-month period, and highlighted the methodological and logistical challenges of studying CPD learning following a national meeting.

Faculty development of medical school and ophthalmology trainees is a related subject and some evidence may be applied to CPD educators. Faculty development can be defined as “a planned program, or set of programs, designed to prepare institutions and faculty members for their various roles, with the goal of improving instructor's knowledge and skills in the areas of teaching, research, and administration.”

Faculty development is an essential component for obtaining high reliability and validity of applied assessment of the level of understanding by learners. Faculty development programs for medical schools began in the United States in 1974. Faculty development traditionally occurs on an individual level. Individuals may undertake external fellowships, sometimes internationally (eg, Bled course, IMEX initiative). Ideally development occurs on a faculty-wide level, which can adapt to the uniqueness of each educational environment.

Reviews of faculty development initiatives demonstrate improved teaching effectiveness to be associated with well-designed interventions following principles of teaching and
learning, use of experiential learning, provision of feedback, effective peer and colleague relationships, and use diversity of educational methods within a single intervention. Organizational development, where educational policies and procedures promote teaching excellence, is also important in increasing teaching effectiveness. Gappa and Leslie have described recommended practices for part-time faculty development, and implementation of some of these recommendations for development of CPD educators could be considered (Table 6).

Table 6. Recommended Practices for Part-Time Faculty Members in Higher Education

| Develop goals for the use of part-time faculty that are based on the educational mission of the college or university. |
| Include the use of part-time faculty in the overall faculty-staffing plan. |
| Consult part-time faculty during the development of faculty-staffing plan. |
| Assign responsibility, delegate authority, develop policies and guidelines, and review and monitor adherence to policy. |
| Systematically and routinely gather and use accurate and timely data on part-time faculty for decision-making purposes. |
| Periodically survey part-time faculty for additional information about their perceptions of the conditions under which they work, their satisfaction with their employment, and other concerns or interests. |
| Assess the benefits and short- and long-term costs of employing part-time faculty. |
| Review and evaluate the faculty-staffing plan on a regular basis. |
| Establish a campuswide representative body to give advice on part-time faculty employment policies. |
| Publish part-time faculty employment policies in the faculty manual and distribute them to all department chairs and faculty, especially the part-time faculty. |
| Make department chairs responsible for consistently implementing part-time faculty employment policies. |
| Offer a range of employment options for part-time faculty. |
| Provide for part-time tenure. |
| Provide security and due-process rights for part-timers with seniority and records of effective performance. |
| Appoint continuing part-time faculty for more extended periods. |
| Establish career tracks that provide rewards and incentives for long-term service and/or high achievement. |
| Identify qualifications for part-time faculty that are legitimately related to the job requirements. |
| Proactively recruit, select, and hire part-time faculty. |
| Diversify the part-time faculty pool through affirmative action. |
| Provide timely and early notification of appointments to part-time positions. |
| Develop a salary scale for part-time faculty. |
| Ensure consistency of compensation practices for part-timers within departments and institutions. |
| Set standards for progression through the salary scale. |
| Provide benefits to continuing part-time faculty. |
| Develop objective performance criteria and procedures for evaluating part-time faculty and use the results as the basis for decisions about reappointment. |
| Provide support services to part-time faculty. |
| Communicate the message that part-time faculty are important to the institution. |
| Give department chairs responsibility and incentives to supervise part-time faculty. |
| Orient department chairs to good supervisory practice. |
| Invite part-time faculty to share their perceptions of effective supervisory practice at department chair training sessions. |
| Use teams of experienced faculty (full- and part-time) to develop new faculty members’ teaching skills. |
| Provided faculty mentors to inexperienced part-time faculty. |
| Engage full- and part-time faculty in course coordination. |
| Involve part-time faculty in the assessment of student learning. |
| Appoint part-time faculty to committees. |
| Involve part-time faculty in informal talks. |
| Invite part-time faculty to social events. |
| Publicly recognize part-time faculty for their achievements and contributions. |
| Orient part-time faculty to the institutions and to the expectations the institutions have for them. |
| Conduct frequent workshops on good teaching practices. |
| Provide in-service workshops on good teaching practices. |
| Provide in-service professional development opportunities of part-time faculty. |
| Provide incentives for good performance. |
| Use teaching evaluations to help part-time faculty improve. |

Implied standards for teaching have been developed in the United Kingdom, United States, and the EU,\(^56, 57, 58, 59\) Wilkerson noted cultural change across the United Kingdom National Health Service institutions to be necessary for planned programs for development
of medical educators. CPD educators and educational settings are more diverse and fragmented, adding to the difficulty of achieving cultural change.

Integrating CPD and teaching content (ie, faculty development) into a single course is an alternative for ophthalmologists who need to undertake both their own continuing education and develop and maintain their skills in teaching. A single course minimizes time competition between these different needs. These have been shown to be effective in studies of general practitioners using commitment-to-change methodology. No integrated courses have been designed specifically for CPD educators.

**Summary and Conclusions**

Despite its importance in developing competencies while in clinical practice and delivering high quality health care, CPD as a scientific discipline is underdeveloped. The evidence base regarding needs, attributes, and development of CPD educators is scanty, with most information applied from studies of educators of medical students or trainees. The culture of CPD is important, but it is very difficult to develop and measure when CPD educators are a diverse and largely voluntary group. More studies are needed to develop and strengthen the scientific basis for the practice of CPD. The proposal by the United States Institute of Medicine for formation of a CPD Institute to promote this goal is laudable. The ICO is in a unique position to promote the scientific basis of CPD, develop its educators, and set the CPD research agenda.

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9. How Can Learning Events Comply With Effective CPD/CME?
   Helena P. Filipe, Zelia M. Correa, Karl G. Golnik

10. How Can We Test Different Levels of Thinking?
    Bloom’s Taxonomy Model of Educational Objectives
    Helena P. Filipe and Karl C. Golnik

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    Nicholas J. Volpe

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Chapter 9. How Can Learning Events Comply With Effective CPD/CME?

Summary

This chapter describes the continuing professional development (CPD)/continuing medical education (CME) provider’s role and responsibilities in developing effective CPD events.

By the completion of this section, you should be able to:

- List CPD/CME accreditation guidelines;
- Explain how accreditation guidelines are relevant to create effective educational experiences.

Introduction

The CPD concept has shifted CME’s traditional emphasis from dissemination of information to producing change in behavior in clinical practice. CPD/CME activities should follow accreditation criteria to ensure certain standards, achieve effective learning, and to be recognized by regulators as demonstrating medical professional accountability.

CPD/CME Accreditation Guidelines

Several professional societies and world organizations have defined accreditation guidelines for CPD/CME providers as outlined below:

- Goals and learning objectives must be clearly built upon identified learning gaps that were found in practice or when preparing for a future role/responsibility;
- Content and delivery format should fulfill the goal of the educational event and follow adult learning principles;
- Assessment modality must match the pre-established learning objectives and be shared with participants at the outset of the event;
- Assessment results must be shared in a timely fashion with participants and discussed by faculty for future CPD program improvement; and
- Guidelines to avoid commercial sponsorship conflict must be clear.

E-Learning Accreditation Guidelines

The expansion of e-learning CPD activities has created the need to specify accreditation criteria for this learning format. The European Accreditation Council of Continuing Medical
Education (EACCME) and the e-CPD Task Force of the Royal College of Physicians and Surgeons of Canada have established criteria to ensure the accreditation of e-learning interventions. Examples of specific accreditation criteria are outlined in Table 1.

Table 1. Criteria for Accreditation of eLearning Educational Events

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm privacy and confidentiality of learners.</td>
<td></td>
</tr>
<tr>
<td>Periodically revise and update content.</td>
<td></td>
</tr>
<tr>
<td>Build content based on evidence.</td>
<td></td>
</tr>
<tr>
<td>Build content following adult learning principles.</td>
<td></td>
</tr>
<tr>
<td>Deliver content complying with multimedia principles.</td>
<td></td>
</tr>
<tr>
<td>Create content with engaging strategies to promote interaction and meaningful learning.</td>
<td></td>
</tr>
<tr>
<td>Provide learning feedback.</td>
<td></td>
</tr>
</tbody>
</table>

Accreditation Guidelines’ Relevance to Creating Effective Educational Experiences

A. Goals and learning objectives must be clearly built on identified learning gaps.

CPD/CME providers and educators should create a transparent learning environment whereby learners understand:

- Goals and objectives to be achieved at completion of a learning event;
- Learning content; and
- Content delivery format and assessment type.

Learners select educational events when they anticipate obtaining a meaningful learning experience and new knowledge to apply in real life experiences, and they participate in educational events motivated by the identification of a specific learning gap and the desire to apply new learning in practice.

Gap analysis compares the difference between a current state of competence (ie, knowledge, attitudes, and skills) against the potential or required skillset. A new surgical technique, a new ancillary test technology, or improvement in a certain field of expertise usually motivate the desire to learn. A plan as to how best meet this learning need is then
devised. The type of educational experience will be selected according to personal learning style and goal appropriateness. The final stage is assessing what has effectively been learned, and if and how this learning experience has produced any change in practice.

A particular situation would occur when selecting a lecture or seminar on ultrasound biomicroscopy. An activity on ultrasound biomicroscopy should enable participants to explain its rationale, but it would doubtfully equip participants with the necessary skill to effectively perform ultrasound exams. As such, “to perform ultrasound biomicroscopy,” cannot be a learning objective of that educational event, but may apply to a learning intervention that offers hands-on exercises, such as a workshop.

Thus alignment of goals, content, delivery format, and assessment that meets previously identified learning gaps will bring effectiveness to the learning process. Learning goals are broad statements defining what learners should demonstrate to have learned as the outcome of an educational event. Learning objectives (LO) derive from learning goals. They should define specific behaviors, expected to be demonstrated by learners as learning activities’ specific outcomes. A helpful LO starting phrase is, “By the end of this session, the participant will/should/must be able to…” An action verb describing a directly observable behavior that learners are supposed to demonstrate should follow. The verb should express an action, disclose the required level of thinking, and link to the assessment type. Particular conditions under which learning should occur and the required level of accomplishment should be clearly defined and shared.
Table 2. Examples of learning objectives vaguely defined (left column) and clarified in accordance to SMART principles (right column).

<table>
<thead>
<tr>
<th>Vague Learning Objectives</th>
<th>Clarified Using Principles of SMART Learning Objectives</th>
</tr>
</thead>
</table>
| Understand why laser peripheral iridotomy (LPI) sometimes does not work in angle closure glaucoma | By the end of this lecture, participants will be able to:  
- List three cases of angle closure glaucoma showing incomplete or no response to LPI;  
- Explain the process by which the latter do not resolve with LPI;  
- List at least three alternative treatment approaches; and  
- Compare three clinical scenarios in which these conditions occur. |
| You will learn about ultrasound biomicroscopy (UBM)                                      | By the end of this internship on ultrasound biomicroscopy (UBM), you will be able to:  
- Explain the rationale of UBM;  
- Describe the technique to perform a UBM;  
- List six situations where this exam applies;  
- Perform at least 10 exams according to the rubric previously provided; and  
- Report at least 10 exams according to the rubric previously provided. |
B. Content and format delivery should suit the goal of the educational event and follow adult learning principles.

Understanding how adults best learn will guide CPD/CME providers and educators as facilitators of meaningful learning. The theory supporting adult learning—**andragogy**, holds a set of assumptions on the adult learning process that emphasizes problem-based, self-directed, and collaborative learning as key learning aspects. Malcolm Knowles has theorized adult education as, “the art and science of helping adults learn,” and has established six adult learning principles outlines below:

1. **Adults are internally motivated and self-directed.**

   The role of the educator is not to dictate content but to facilitate and promote “learning how to learn.”

2. **Adults bring life experience and knowledge to learning experiences.**

   Previous personal experience and baseline knowledge must be considered when creating an educational event.

3. **Adults are goal oriented.**

   Adults become motivated to learn when they identify a professional learning gap. To provide a meaningful experience, the educator must seek out the learners’ specific reason to learn.

4. **Adults are relevancy oriented.**

   Content relevance is tied to learning goals and their application in clinical practice. The educator should foster participants’ reflection on learning.

5. **Adults are practical.**

   Collaborative and practice-based learning promote adult learning. A good rule of thumb is to save at least 25% of an educational experience’s time for interaction (eg, a question-and-answer period at the end of a lecture).

6. **Adult learners like to be respected.**

   Personal and unique life experiences should be acknowledged. The educator should respect and value those experiences in the process of learning.¹⁵
To utilize these adult learning principles, CPD/CME educational experiences will more likely produce effective learning if they:

- Assess previous knowledge and focus on new learning;
- Meet learning gaps based on needs assessment;
- Integrate practice-based learning and evidence-based content;
- Consider and respect self-directed-learning (SDL); and
- Provide interactivity among all involved: participants, faculty, and content.\textsuperscript{16, 17}

Formal educational settings, especially when small group educational events are conducted, should follow the aforementioned principles.

Incorporating tutors and interactivity opportunities to decrease a possible passive learning experience can enhance web-based learning activities. Additionally, CPD/CME providers have increasingly become interested in the learning potential of social networks, wikis, blogs, virtual worlds, and simulations that have been showing wide acceptance by participants. Social media enhances professional networking and may contribute to research efficiency by facilitating communication among people sharing common research interests.\textsuperscript{18, 19, 20, 21, 22}

C. Assessment type and modalities must match learning objectives and be shared with the participants at the event’s outset.

Assessment of the CPD/CME program should investigate if:

- Target audience needs were addressed;
- Learning objectives were met;
- Participants were engaged; and
- Behavioral changes were achieved.

Based on Kirkpatrick’s Learning Evaluation Model\textsuperscript{23,24} Dixon has defined four evaluation levels for continuing medical education.\textsuperscript{25, 26}

**Level 1: Perception and Satisfaction**

This is the easiest and least expensive level to assess. A survey at the conclusion of an educational event should ask:

- Did the content meet your perceived learning needs?
- Were the learning outcome objectives clearly stated?
- Were the learning outcome objectives met?
• Was at least 25% of time allocated for interactive learning?
• What topics would you like to study in the near future?
• What changes do you plan to make in your clinical practice based on what you have learned? What additional plans do you plan to pursue?
• Were the teaching methods effective?

**Level 2: Competency Assessment**

Assessment should be designed to provide an objective measure of whether new learning has actually occurred and to substantiate documentation for regulatory bodies. A pre- and post-assessment can be useful. Acquisition of new knowledge can be assessed with a group of multiple choice questions. Acquisition of a new skill or professional attitude require a different assessment approach, such as self assessment, standardized patients, simulators, and/or objective structured clinical examinations (OSCE).

**Level 3: Professional Performance Assessment**

This is meant to measure appropriate on-the-job utilization of new knowledge. Direct observation, clinical audits, peer review, and chart reviews are examples of assessment tools appropriate to test this level.

**Level 4. Health Care Outcome Assessment**

The ultimate aim of CPD/CME programs are their impact on the well being of the surrounding community. Preferred practice patterns and use of health care resources are areas that should be measured. Health care indicators can be used as assessment tools, for instance, visual acuity of patients with diabetic retinopathy or the percentage of patients with diabetic retinopathy undergoing a vitrectomy after a program.

**D. Assessment results must be shared in a timely fashion with participants and made available for future CPD program improvement.**

Participants should know results as soon as possible because perceptions regarding the value of an educational experience change with time. Results should become relevant material for educators to analyze and guide future learning interventions.

**E. Guidelines to avoid commercial sponsorship conflict.**

For accreditation purposes, sponsorship cannot have any influence over any aspect of the learning activity planning and administration. Transparent physician-industry interactions should be pursued, and physicians must clearly demonstrate that their primary obligation is to their patients and duties to society.\(^{27}\) For further discussion, see Chapter 11.
Conclusion

Educational experiences must be created following accreditation guidelines that define good practices to plan, design, implement, and assess a CPD/CME program and make it effective. Adhering to these guidelines will make physicians’ CPD demonstrable and regulated and will assure professional accountability to society. The success of a program will be based on a change of behavior in practice settings and the impact on health care of the population served.

Helena P. Filipe, MD, MSc, Zélia M. Corrêa, MD, PhD, and Karl C. Golnik, MD, MEd

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Chapter 10. How Can We Test Different Levels of Thinking?
Bloom’s Taxonomy Model of Educational Objectives

Summary

This chapter summarizes the process of creating learning objectives according to different levels of thinking.

By the completion of this section, you should be able to:

- List the levels of thinking in Bloom’s model of educational objectives.
- Explain the relevance of creating good learning objectives.
- Explain how to build learning objectives addressing different levels of thinking.

Learning objectives (LO) should be phrased with an action verb to suggest the assessment method most appropriate to measure learning. A written test is not suited to assess an objective such as, “By completion of this workshop on cataract surgery simulation, participants will be able to perform two central continuous curvilinear capsulorhexis. However, a LO such as, “By completion of this lecture participants should be able to sequentially list the steps of cataract surgery,” can be assessed by an open-ended or a multiple-choice question.

Action verbs can be organized into specific learning domains: cognitive (thinking), affective (attitudes and feelings), and psychomotor (physical skills). Bloom’s Taxonomy of Educational Objectives is a system to categorize cognitive, affective, and psychomotor learning objectives as a continuum from basic to higher order thinking/feeling/performing.

The cognitive domain is the most frequently used and is classified into six hierarchic levels. From lower to higher order thinking:

1. Knowledge—remember learned information;
2. Comprehension—demonstrate understanding of the facts;
3. Application—apply knowledge in actual situations;
4. Analysis—break down objects or ideas into simple parts and find evidence to support generalization;
5. Synthesis—compile component ideas into a new whole or propose/create alternative solutions;
6. Evaluation—make and defend judgments based on internal evidence or external criteria.

Anderson and Krathwohl have revised Bloom’s model and introduced minor, yet relevant modifications. Instead of nouns they used action verbs to designate levels to convey their dynamic and active aspect. The two higher levels were reversed, based on the assumption that synthetizing and creating already involve evaluation and personal judgment.¹, ², ³, ⁴, ⁵, ⁶, ⁷

**Table 1. Bloom’s Taxonomy of the Cognitive Domain**

<table>
<thead>
<tr>
<th>Original</th>
<th>Level Description</th>
<th>Revised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation</td>
<td>Make and defend judgments based on internal evidence or external criteria.</td>
<td>Creating</td>
</tr>
<tr>
<td>Synthesis</td>
<td>Compile component ideas into a new whole or propose/create alternative solutions.</td>
<td>Evaluating</td>
</tr>
<tr>
<td>Analysis</td>
<td>Break down objects or ideas into simple parts, and find evidence to support generalization.</td>
<td>Analyzing</td>
</tr>
<tr>
<td>Application</td>
<td>Apply knowledge in actual situations.</td>
<td>Applying</td>
</tr>
<tr>
<td>Comprehension</td>
<td>Demonstrate understanding of the facts.</td>
<td>Understanding</td>
</tr>
<tr>
<td>Knowledge</td>
<td>Remember learned information.</td>
<td>Remembering</td>
</tr>
</tbody>
</table>

Helena P. Filipe, MD, MSc, and Karl C. Golnik, MD, MEd
References


Chapter 11. Does Commercial Sponsorship Compromise CPD Events?

This chapter summarizes how a commercially sponsored learning event can meet continuing professional development (CPD) purposes/continuing medical education (CME) criteria.

By the completion of this section, you should be able to:

- List guidelines for commercial sponsorship of CPD activities; and
- Synthesize the relevance of establishing such guidelines.

The CPD process and its many elements are critical to the ongoing education of ophthalmologists. CPD ensures physicians are providing optimal patient care and surgery and are satisfactorily meeting the societal expectations of being current in their knowledge. In addition, it is more likely that an ophthalmologist will enjoy a satisfying and rewarding practice if he or she learns the newest and best ways to help their patients, as well as regular review of the material critical to providing this care.

Physicians remain current by a number of mechanisms, including reviewing new textbooks, reading journals and electronic publications, consulting colleagues to discuss challenging patients, and by attending courses, conferences, advocacy events, and grand rounds that promote continued development through CME, portfolio development, peer communication, and review.

Understanding how to manage commercial sponsorship of learning events to guard the CPD process will protect both the physician and the sponsor from engaging in activities that have inherent conflicts and bias. Commercial sponsorship is often a necessary source of resources for learning events. As long as commonly agreed upon guidelines are met—a third party overseeing the event, all parties agreeing to transparency, full disclosure, and educators offered a solution to communicate and manage any conflicts of interest—then it is quite likely that commercially sponsored learning events can be a successful part of the CPD process.

The planning of the learning event should include careful attention given to sponsorship to avoid conflict and to successfully manage the relationship so that the sponsor can continue to play a role in the CPD process. In order for this to occur, the host institution and the funding source should agree to the following guidelines:

1. A commercial interest is any entity producing, marketing, re-selling, or distributing health care goods or services consumed by, or used on, patients.
2. All support should be given as a general unrestricted educational grant.

3. All teachers and the organizer should be required to acknowledge any potential conflicts of interest based on money or any other items of any value that they have received.

4. Sponsors should have no role in:
   a. Determining the need for a learning or CME activity;
   b. Planning of the event, control of the content, or method of education;
   c. Choosing speakers with the organizer or host responsible for all content; and
   d. Participating in the evaluation process.

5. All participants should fully disclose any commercial relationships or support.

6. The learning activity should be reviewed by and follow all guidelines required by the accrediting committee in accordance with the required timeline.

7. It is acceptable to talk about the class of agents or products that the commercial sponsor provides just not specific agents or devices.

If these criteria are met, then learning activities can meet CPD criteria. In these situations, the activities are generally well monitored.

The physician-learner should ensure that non-accredited, non-monitored activities are not perceived as CPD or used in place of true, well-monitored, learning activities. It becomes the physician’s personal responsibility to self-monitor these activities to be sure that he or she is not solely receiving new information in a conflicted manner, such as from a pharmaceutical or device manufacturer, sales representative, or hired speaker, or in the form of meals, promotional materials, trials, samples, etc. These types of activities should never substitute as part of the CPD process. While important new information can come from these sources, recognizing that this information is conflicted by definition, and must be interpreted in context and after further review and self-reflection, is of the utmost importance.

Nicholas J. Volpe, MD

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Section E. Regulators’ Perspective

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Catherine M. Green and Helena P. Filipe

13. CPD/CME Programs: What Tools Can Be Used for Standardization and Harmonization?
Gordana S. Mégevand

14. What Are the Main Strategies and Tools to Evaluate CPD/CME Activities & Programs?
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Chapter 12. What Are the Main Steps to Creating a Structured CPD/CME Plan?

Summary

This chapter provides a framework for professional ophthalmological societies to establish and develop an effective continuing medical education (CME)/continuing professional development (CPD) plan.

By the completion of this section, you should be able to:

- List key features of effective CPD/CME;
- Describe the importance of developing a structured CPD/CME plan; and
- Describe and explain the basic requirements to build a structured CPD/CME plan.

Background

Medical and surgical technologies continue to evolve and expand. Ophthalmologists therefore need to ensure that knowledge and skills are maintained, and that their practice safely incorporates new developments, including advances in scientific knowledge, technologies, and surgical techniques. A solid understanding of evidence-based medicine is important in the appraisal of new developments. In addition to the personal development aspects of continuing education, societal expectation has led to increased regulation and assessment of clinical and professional standards. A robust CPD program is an effective method of demonstrating that standards are valued and upheld, with appropriate sanctions for those who do not meet required standards.
CPD is a cyclic, continuing, self-directed, practice-based learning process tailored to personal learning needs. Effective CPD/CME puts emphasis on continuing improvement through the ability to match learning to practice. Learning should include theoretical knowledge (understanding “why”), application of knowledge to practice (the “how”), and teaching and supervision (“showing how to do”). Personal reflection about one’s professional educational needs, as a metacognitive exercise, plays an important role in a successful physician’s lifelong learning. Reporting to enable regulation and demonstrate medical profession accountability is central in the CPD cycle (Figure 1).

![Figure 1. Components of an effective CPD/CME. The CPD/CME cycle stages are represented by the green boxes. Documentation and reporting of the ongoing individual learning plan is central to the CPD/CME cycle. Examples of activities at each stage of the](image-url)
The CPD cycle are shown between the green boxes, leading to the next stage of the cycle. The blue rectangles show how an identified medical competency-learning gap (in the red trapezoid) triggers the cycle of three professional questions, which in turn determine the CPD/CME actions. These questions include the three critical elements of CPD/CME: quality assurance, quality improvement, and control and regulation.

Society justifiably expects that medical professionals will maintain their competence, keep up-to-date with new developments, and practice ethically throughout their career. It is now widely recognized that professional competencies comprise not just medical knowledge and skills, but also those related to collaboration, communication, advocacy, scholarship, management/leadership, and professionalism.

Traditional models of CME have focused largely on clinical knowledge, but have not addressed the expanding roles of medical practitioners. Modern CPD programs incorporate learning activities that facilitate the acquisition and expansion of the broader skills required of the modern doctor. An effective CPD plan should ideally be Systematic, Comprehensive, Accredited, and Regulated (SCAR) (Figure 2).

A. **Systematic**: It is recognized that there is “no single, singular, or correct way of doing CPD.” Traditional CME has been shown to have only a modest effect on physician practice and patient outcomes; in addition, concerns have been raised about excessive commercialization. This has led to the creation of organized systems designed for lifelong learning with an emphasis on quality maintenance, improvement, and control.

B. **Comprehensive**: Medical expertise remains a key pillar of continuing education; however the additional skills of collaboration, communication, scholarship, health advocacy, professionalism, and leadership are dimensions that should be developed and demonstrated in practice.
practice requires the three attributes of a competency: knowledge (a science), know-how (an art), and demonstration of skills (a behavior).7, 8

C. **Accredited:** Effective learning activities should be designed by CPD/CME providers to comply with adult-learning principles and framed in a structured plan based on the CPD cycle.9 10 11 12 13

D. **Regulated:** An effectively structured CPD/CME plan must include a solid evaluation component comprising essential aspects as presented below.

- Several assessment modalities should be considered, such as audits, portfolios, appraisal tools, peer review, and certification maintenance. The modalities chosen should be based on each practitioner’s personal learning plan.14

- Educational events should be evaluated to ensure that they are effective. A useful framework has been developed by Dixon12; evaluation includes perception and satisfaction assessment, competency assessment of knowledge, skills, and attitudes, professional performance assessment, and health care outcome assessment.

- The structured CPD plan should be cost effective and take into account regional health care needs.17
Nine Steps to Develop a Structured CPD/CME Framework

An effective CPD/CME program provides a structured framework that allows participants to plan, record, and report on the educational activities undertaken.

Well-planned and managed structured CPD/CME plans:

- Minimize a participant's administrative burden;
- Recognize unplanned and informal learning activities;
- Use electronic lodgment (ie, a web-based electronic log);
● Ascertain a streamlined flow of standardized documentation reporting the physician’s personal learning plan to all CPD stakeholders;
● Perform continuing self-regulation;
● Simplify administration and reduce cost;
● Require demonstration of professional competence to best serve the community’s health care needs;
● Ensure educators offer activities that comply with ethical practices; and
● Are transparent and objective.

Medical professional organizations should assume the leadership for organizing CPD activities, including the funding and allocation of resources and ensuring that medical education is unbiased. Ophthalmic societies are well placed to show leadership in the development and continuing improvement of CPD.

A nine-step plan can be used for establishing or revising a structured CPD/CME program (Figure 3).

Figure 3. Nine steps to develop a structured CPD/CME framework
Step 1. Allocation of Resources

The ophthalmic society should establish a taskforce or CPD committee who will be responsible for the development, implementation, and regulation of the program. This committee will act as the interface of the professional organization and all CPD stakeholders effectively coordinating all efforts for a shared goal: the well being of the population (Table 1). It is important to ensure that there is appropriate representation of stakeholders/members. This may include geographical distribution, practice setting (eg, rural vs. metropolitan), type and scope of practice (comprehensive ophthalmologist vs. sub-specialist, procedural vs. non-procedural), and stage of career development. The ophthalmic society should also ensure that there are adequate administrative resources to support the activities of the committee; this can be challenging in low resource environments.

Table 1. CPD/CME Committee Tasks

<table>
<thead>
<tr>
<th>Task</th>
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<tbody>
<tr>
<td>Create and sustain a supportive learning environment.</td>
</tr>
<tr>
<td>Continually review and assess the quality of CPD programs.</td>
</tr>
<tr>
<td>Provide workshops on the use of learning tools and strategies.</td>
</tr>
<tr>
<td>Provide opportunities for learning outside of the medical practice,</td>
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<tr>
<td>and thereby extending into other areas of learning.</td>
</tr>
<tr>
<td>Establish support units to assist physicians in identifying resources and strategies.</td>
</tr>
<tr>
<td>Facilitate skills development, transfer of best practices, and benchmarking.</td>
</tr>
<tr>
<td>Provide funding and support for learning projects.</td>
</tr>
</tbody>
</table>
Step 2. Situational Analysis

Before embarking on a new or revised CPD/CME program, it is important to understand current practices and systems. A SWOT analysis (ie, a resource that identifies the Strengths, Weaknesses, Opportunities and Threats of an organization)\textsuperscript{15} is a useful tool to assess the existing system. As the appraisal includes the strengths, weaknesses, opportunities, and threats of the system the analysis identifies gaps/needs, and also highlights areas of strength, preventing unnecessary duplication. It is important to understand the legal/regulatory framework and to determine whether existing programs meet these requirements. Understanding of the legal/regulatory framework also allows assessment of predicted future requirements, encouraging long-term preparedness and “future-proofing” of the program. This process should identify other stakeholders (eg, universities, public interest groups, other professional societies, and regulatory boards), which may impact upon the design of the program e.g. length of the CPD cycle.

Another action is partnering low resource and high resource countries to facilitate implementation of CPD programs. E.g. RANZCO has partnership with Cambodia Ophthalmological Society in implementing CPD program.

Step 3. CPD/CME Program Content

A wide range of activities should be included in the CPD/CME program to allow clinicians to plan CPD activities that best meet their practice and learning needs (Table 2).
Since lifelong learning is self-directed and practice based, an effective CPD program must be flexible. Content management and delivery format should be adaptable to the professional context and personal learning style. An accredited learning program should be available and can include live educational events or eLearning activities, or both. Content should include dimensions other than medical expertise, such as communication, professionalism, scholarship, leadership, team building, new technologies for teaching and learning, health advocacy, and ethics.

**Table 2. Activities Commonly Included in CPD Programs**

<table>
<thead>
<tr>
<th>Types of CPD Activities</th>
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<tbody>
<tr>
<td>Surgical audit</td>
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<tr>
<td>Peer review</td>
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<tr>
<td>Hospital credentialing</td>
</tr>
<tr>
<td>Clinical governance</td>
</tr>
<tr>
<td>Evaluation of patient care</td>
</tr>
<tr>
<td>Maintenance of clinical knowledge and skills</td>
</tr>
<tr>
<td>Teaching and examination</td>
</tr>
<tr>
<td>Research and publication</td>
</tr>
<tr>
<td>Medico-legal activities</td>
</tr>
<tr>
<td>Professional skills (eg, management, communication)</td>
</tr>
</tbody>
</table>

These common learning and development activities can take place through a variety of methods and structures, including:

- Conducting a clinical or surgical audit;
- Attending conferences/lectures;
- Morbidity/mortality meetings;
- Practice review/accreditation;
- Journal club;
- Reviewing a scientific paper for publication;
- Publishing a scientific paper;
- Completing a course/degree;
- Authoring a book or book chapter;
- Supervising or mentoring trainees;
- Examining trainees; and
- Developing a personal learning plan.

**Step 4. Structure of the Program and Length of the CPD Cycle**

A system should be developed that allows participants to claim and record credits for participation in the program. Most programs use a points system, with many allocating a point-per-hour of passive activities (eg, attending a lecture or conference), and higher credit allocated to more active learning (eg, performance of an audit). As the main goal of CPD is to improve clinical practice and patient outcomes, it is recommended that an audit be included as a substantive (and compulsory) component of the program (audits and the audit cycle are discussed in Step 6). It is the responsibility of the CPD committee to decide on the requirements for completion (ie, the number of points allocated to activities, the number of points required for completion) and time frame of the program. Some societies run their programs on an annual cycle, while others choose a two- or three-year cycle. When starting a CPD program where none has existed previously, organizations may start with less onerous or stringent requirements for completion over a longer period, and gradually phase in activities that are more rigorous as participants become familiar with CPD and understand that it is integral to clinical practice.
Step 5. Documentation

Participants should be provided with a user-friendly system that allows them to record their CPD activities. The system can be a simple, paper-based learning diary or log, but increasingly, web-based electronic logs are being used. Electronic lodging not only enhances the ease of recording for participants, but also facilitates monitoring of participation and completion rates, as well as providing useful data for continuing improvements of the program itself.

Ideally, documentation should be streamlined, easy to access, and facilitate ease of retrieval of data. Care should be taken to ensure that only essential information is recorded, minimizing the administrative burden on participants.\(^\text{17}\)

A personal portfolio is an individual portable collection of professional reflections, achievements, and aspirations. Using a portfolio makes physicians consciously aware of their own CPD cycles and personal learning plan progression. An online portfolio, which can be designed according to the CPD cycle framework, becomes both an assessment and a learning tool.\(^\text{18}\)

Step 6. Administration and Management

Ophthalmology societies should make every effort to ensure their members are participating in and compliant with CPD/CME requirements. There should be clear communication with members about the structure of the program, criteria for compliance, activities being offered, and important dates. The society’s website is an accessible and cost-effective way of communicating with members, but additional communication (eg, email, paper-based pamphlets) may also be required. Participants should be given sufficient notice and opportunity to record activities by the completion date of the CPD cycle, and they should receive a certificate of completion at the cycle’s end.
Participants who do not meet minimum requirements should be contacted and provided an opportunity to remedy their situation. Consequences for non-compliance (eg, loss of membership) should be published and communicated to members. A fair and transparent appeals process should be established to facilitate the handling of complaints or disputes. Medical boards in some countries require compliance with CPD requirements for ongoing registration as a medical practitioner. This regulatory requirement, if in place, should be communicated to members.

At the end of each CPD cycle, a random sample of participants should be audited and required to submit evidence that the activities claimed were indeed carried out. There should be agreed upon sanctions for falsification of records, which could include referral to a relevant regulatory authority (eg, a medical board).

The ophthalmology society should undertake regular audits of its program to update and refine processes, including administration, ease of compliance, and relevance to the learning needs of members.

The CPD committee should develop appropriate forms/documents to allow processing of, for example, learning event accreditation, conflict of interest disclosure, audit documentation, and a personal learning plan.19

**Step 7. Accreditation of Educational Activities**

The CPD committee has a responsibility to set standards for educational activities to ensure that only appropriate and high quality activities are included in the CPD framework. While there can be general guidelines outlining types of activities for which credits can be claimed, there should be a mechanism by which official accreditation of activities can be carried out. This also allows participants to select activities that they know will meet the requirements of their CPD program.
As an example, the following checklist can be used to evaluate the educational merit of proposed activities:

- What are the educational objectives of the proposed event?
- Is there a clear educational need for such an activity?
- Are the location, timing, and duration of the proposed meeting appropriate?
- Is the proposed meeting likely to meet the educational needs of the intended audience?
- Are the content and learning methods of the meeting appropriate to the educational objectives?
- Is the proposed meeting free of undesirable commercial influence?
- Are the proposed teachers appropriate?
- Is there any evaluation of the relevance of the program, such as its quality and effectiveness, included in the proposed activity?

Step 7.1. Sponsorship and Relationships with Industry

There is increasingly awareness of the importance of understanding the influence of commercial organizations on the thinking and decision-making of doctors and the need to separate commercial interests from patient care and medical decision-making.

The following recommendations have been adapted from guidelines from the International Council of Ophthalmology (ICO), American Academy of Ophthalmology (AAO), and the American Medical Association (AMA) to be applied to CPD activities and are discussed in Chapter 1.

- The organizer of the CPD activity is responsible for the scientific integrity of the activities certified for credit.
- The organizer is responsible for the choice of topics and their evaluation.
• The representatives of the sponsoring commercial organization should not interfere with the choice of moderators, lecturers, or other presenters, nor in the choice or content of topics.
• Sponsorship by a commercial organization must be acknowledged.
• The sponsoring commercial organization will not use the educational activity to engage in sales activities.
• Proprietary interests of the organizers should be disclosed.
• The educational activity must be free of commercial bias for or against any product.
• It is appropriate for presenters to accept reasonable honoraria and reimbursement for reasonable travel, lodging, and meal expenses.
• The organizer of the activity may ask for help from the sponsoring commercial organization in preparation of educational materials and in the planning and marketing of the activity. However, the information must identify the CPD activity as produced by the responsible organizer. When commercial exhibits are part of the overall program, arrangements of these exhibits should not influence planning or interfere with the presentation of educational activities.
• Commercially supported CPD social events should not compete, nor take precedence over, educational events.
• When sponsored by a commercial organization, the sponsoring company sends speaker and material information to the ophthalmologic society’s CPD committee for use by the society’s membership.

Step 8. Program Implementation

For some ophthalmic societies/educational bodies, CME and CPD are well embedded in practice and are undertaken routinely by ophthalmologists. For others, particularly in countries in which ophthalmic education is less established, the implementation of a CPD program will require significant planning, as well as education of member participants. For new programs, it is essential that
participants understand why CPD is important and that CPD be relevant and meaningful, applicable to real world practice. It is important too that CPD be seen as being driven from within the profession, rather than a system being imposed from the outside. When implementing a new program, these factors need to be considered, with achievable goals and realistic timelines set. CPD should be embedded within specialist ophthalmology training programs so that new graduates see ophthalmic education as a continuum of lifelong learning and development. Having a CPD committee comprised of individuals that appropriately represent the membership ensures that the content is appropriate to educational and real world needs, and also facilitates dissemination of information about CPD to relevant constituents. The communication strategy should link the CPD program with appropriate accredited activities that are well publicized and accessible. Identifying CPD “champions” to promote CPD to the membership is a helpful strategy in launching a new program.

**Step 9. Program Piloting and Assessment**

To ensure best possible outcomes, all participants—individuals and agencies — must fully understand and accept the implemented structured CPD/CME framework. The design and implementation must nurture the concept that the practicing physician serves the individual in a societal group and that best professional care delivery and health outcomes will be achieved if an effective CPD/CME program is embraced.

Competencies and specific attributes, content and delivery format, learning strategies, and assessment modalities should be continuously piloted, evaluated, and accordingly re-adapted (Table 3).
Table 3. Components of a Structured CPD/CME Framework*

<table>
<thead>
<tr>
<th>Components</th>
<th>Actions and Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competencies</td>
<td>Incorporate medical scientific progress and the changing needs of practice</td>
</tr>
<tr>
<td>Content</td>
<td>Continuously updated to meet population needs</td>
</tr>
<tr>
<td>Learning Formats</td>
<td>Multiple, appropriate, and relevant</td>
</tr>
<tr>
<td>Practice-based Learning and Self-Assessment</td>
<td>Fostered</td>
</tr>
</tbody>
</table>

* May be updated and re-adapted if necessary.

Despite regional differences, there are attributes universally accepted to best design, implement, and assess a structured CPD/CME plan (Table 4).

Table 4. Desirable Attributes of an Effective CPD/CME Program

<table>
<thead>
<tr>
<th>Attributes</th>
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<tbody>
<tr>
<td>Accessible to all stakeholders</td>
</tr>
<tr>
<td>Efficient, fair, transparent, credible, accountable</td>
</tr>
<tr>
<td>Ensures recognition, support, cooperation, collaboration, coordination, and adherence with guidelines</td>
</tr>
<tr>
<td>Based on personal needs found in practice or preparing for future roles</td>
</tr>
</tbody>
</table>
Encompasses learning activities complying to adult learning principles

Specifically aimed at change in practice and patient outcomes

Possibly reinforced in practice

Employs appropriate modalities based on comprehensive assessment: physician, patient, and governing bodies perspective

Conclusion

The ideal characteristics of a CPD/CME plan could be summarized as follows:

- Relevant, meaningful, positively influencing doctor behavior/practice;
- Driven by the profession—from within the profession;
- Related to improved patient outcomes;
- Accessible—easy to achieve for the vast majority of practitioners;
- Affordable;
- Independent (not influenced by industry);
- Easy to understand and administer;
- Accountable and evidence based;
- Based on adult learning principles, encouraging reflective practice;
- Easy to create reports/measure outcomes;
- Covers a broad range of professional competencies;
- Flexible—applicable to practitioners from a variety of clinical settings;
- Added credits for higher educational value activities (eg, surgical audit);
- Should include clinical audit as a component;
- Peer reviewed; and
- Cyclical evaluation for continued improvement of the program itself.
CPD/CME is fundamental to the medical profession and demonstrates to the public and regulators that physicians continuously strive for the highest standards and best patient outcomes. Applying a framework to CPD/CME is essentially an extension of centuries of medical practice, so it is easily achievable and does not need to place an onerous burden on the individual practitioner. The cyclical nature of the framework allows for continuing improvement and adaptation to ensure CPD/CME relevance in clinical practice.

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Chapter 13. CPD/CME Programs: What Tools Can Be Used for Standardization and Harmonization?

Summary

This chapter focuses on the tools used by supranational organizations trying to standardize and harmonize continuing medical education (CME)/continuing professional development (CPD) delivery and evaluation, with the goal of summarizing criteria and requirements for assessing CPD/CME by supranational organizations.

By completion of this section, you should be able to:

- Explain the relevance of harmonizing CPD/CME program development and delivery; and
- Describe the criteria of two main systems for CPD/CME program assessment, as examples of best practice.

Introduction

Different CPD/CME evaluation systems have detailed criteria with the purpose to ensure standardization and harmonization of the development, delivery, and protection of CPD/CME programs in order to elaborate clear guidelines and unified quality in delivery and evaluation of medical education and development.¹ ²

Although the content of these criteria vary somewhat, their general aim is to ensure a high and unbiased standard of education and globally raise the standard of patient care.

There are two primary CPD/CME organizations: the European Accreditation Council for CME (EACCME)¹ and the American Council for CME (ACCME).² Establishing and developing an effective CPD/CME framework are detailed in Chapter 12.

The European Accreditation Council for CME (EACCME)

Since it was established in January 2000, the EACCME has encouraged high standards in the development, delivery, and harmonization of CPD/CME. This has been achieved primarily through the international accreditation of CME events and the establishment of a system for the international acceptance of CME credit points,¹ referred to as the European CME credit (ECMEC).

The EACCME accredits:

- Live Educational Events
- E-learning Materials
Live Educational Events

Live Educational Events (LEE) are defined as meetings. The primary purpose of LEE is the provision of medical education material to doctors for their educational benefit.

LEE accreditation applies to all European countries and specialties that have a recognition agreement with the EACCME, and for countries providing CPD/CME events for attending doctors who reside in Europe. When considering applications for the accreditation of live events, the EACCME applies updated criteria from January 1, 2013, that has to be fulfilled in order to access accreditation (Table 1).3,4

Table 1. Relevant Criteria for the Accreditation of the LEE

<table>
<thead>
<tr>
<th>Relevant Criteria for Accreditation of the LEE</th>
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<tbody>
<tr>
<td>Statement of educational objectives and fulfillment of learning needs.</td>
</tr>
<tr>
<td>Description of the LEE.</td>
</tr>
<tr>
<td>Details of the provider, the scientific and/or organizing committee, and the faculty.</td>
</tr>
<tr>
<td>Detailed and finalized program .</td>
</tr>
<tr>
<td>Statement on the funding of the LEE.</td>
</tr>
<tr>
<td>Declaration of any promotional material must be free of any form of advertising and any form of bias.</td>
</tr>
<tr>
<td>Statement on reliable and effective means for the learners to provide feedback on the LEE, including the extent to which the educational objectives of the LEE were met.</td>
</tr>
</tbody>
</table>

The mechanism of application goes through a common Internet platform: the submission consists of a completed application form confirmed by the medical practitioner who is taking responsibility for the application, proof of payment, and a questionnaire for participants to complete at the end of the event. The application should be sent 14 to 16 weeks prior to the scientific event. The accreditation of live events is based on a 1 hour = 1 ECME point principle with maximum of 3 ECME points per half day and 6 ECME points per 1 full educational day. The EACCME reserves the right to request that doctors, who will be attending the LEE, provide independent reports on the fulfillment of the criteria of the EACCME.

E-learning Materials

Considerable advances are being made in the methodologies by which CME and CPD can be provided, and by which these educational opportunities are accessed by doctors. Methods include recorded audio/visual, compact disc (CD) or digital versatile disc (DVD), available on a personal digital assistant (PDA) device, or online via an educational website, or any mixture of technological developments.
In 2009, the EACCME introduced a system that provides for the accreditation of e-learning materials. This system was improved and structured since June 1, 2011 (Table 2).5

**Table 2. Relevant Criteria for Accreditation of E-learning Materials**

<table>
<thead>
<tr>
<th>Relevant Criteria for Accreditation of E-learning Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement on how the material is prepared in order to fulfill stated educational needs, and indicate how this will be achieved.</td>
</tr>
<tr>
<td>Statement on the expected educational outcome.</td>
</tr>
<tr>
<td>Description of the “target audience” and suitability for an international audience.</td>
</tr>
<tr>
<td>Confirmation of privacy and confidentiality of the learner.</td>
</tr>
<tr>
<td>Acknowledgement of the materials compliance with all relevant ethical, medico-legal, and legal requirements.</td>
</tr>
<tr>
<td>Statement on the evidence-based character of the material.</td>
</tr>
<tr>
<td>Statement on the learner’s feedback regarding the e-learning materials; either through multiple-choice questionnaire or other self-assessment methodologies. This feedback must be submitted to the EACCME within 12 months of accreditation having been granted.</td>
</tr>
<tr>
<td>Ensure that the material is free from any commercial influence or other forms of bias or advertising.</td>
</tr>
<tr>
<td>Description of the CPD/CME provider’s qualifications, organization, declaration of conflict of interest, and source of funding of the e-learning material.</td>
</tr>
<tr>
<td>Means for the learner to provide feedback in order to maintain accreditation.</td>
</tr>
</tbody>
</table>

Before the e-learning material is accepted for publication, a review process is initiated by the EACCME, and the material is sent to the European Board of Ophthalmology (EBO) for review. Three independent reviewers, two experts in the field and one general ophthalmologist chosen by the EBO, have the task of evaluating the criteria summarized in Table 2, as well as the pertinence of the scientific content, the time spent to go through the material, and the user-friendliness of the material. Following this review, the material has to be changed according to the suggestions made by the three reviewers, or the accreditation can be done by using the number of hours as equivalent to the number of CME points.

For accreditation of the e-learning material, the EACCME uses the following principle for obtaining European CME credit:

- 45–90 minutes = 1 ECMEC
- 91–150 minutes = 2 ECMEC
- 151–210 minutes = 3 ECMEC
The American Council for CME (ACCME)

The ACCME develops and maintains criteria and standards for the national and intrastate systems, for evaluation of both educational programs and their activities by which the ACCME and state accrediting bodies will accredit institutions and organizations and be responsible for assuring compliance with these standards.

These standards are considered as a national model.6 (Table 3)

Table 3. Criteria for Accreditation Based on ACCME Updated Document from 2014

<table>
<thead>
<tr>
<th>Criteria for Accreditation Based on ACCME Updated Document from 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inclusion of a CME mission statement.</td>
</tr>
<tr>
<td>Identification of educational needs (ie, knowledge, competence, or performance).</td>
</tr>
<tr>
<td>Activities/educational interventions that are designed to change competence, performance, or patient outcomes.</td>
</tr>
<tr>
<td>Appropriate educational formats for activities/interventions for the setting, objectives, and desired results of the activity.</td>
</tr>
<tr>
<td>Independent of commercial influence.</td>
</tr>
<tr>
<td>Appropriately manages commercial support.</td>
</tr>
<tr>
<td>Separation of promotion from education.</td>
</tr>
<tr>
<td>Analysis of change in learners.</td>
</tr>
</tbody>
</table>

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References


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4 Adopted by the UEMS Council on 19th October 2012 in Larnaca (Cyprus) Entry into force [Internet]. 1st ed. EACCME®; 2013 [cited 22 December 2014]. Available from:


Chapter 14. What Are the Main Strategies and Tools to Evaluate CPD/CME Activities and Programs?

Summary

This chapter familiarizes the reader with the most important continuing medical education (CME)/continuing professional development (CPD) assessment strategies available around the world, their organization, activities, and requirements.

By the completion of this section, you should be able to:

- Explain the main strategies conducted by the following supranational organizations to evaluate CPD/CME activities and programs:
  - European Accreditation Council for CME (EACCME)
  - American Council for CME (ACCME)
  - Rome CPD/CME Group
  - The Society for Worldwide Medical Exchange (SWME)
  - Global Association for Medical Education (GAME)
- List tools currently used to evaluate CPD/CME.

Introduction

The main task of medical education is the provision of high quality health care while basing clinical practice on evidence. Quality assurance of medical education must give emphasis to improvement, and provide guidance for advancement, instead of advocating “fulfillment of standards” as the ultimate goal.\(^1\) CME has traditionally been evaluated by accreditation of knowledge acquired through meetings, courses, or activities in which doctors are required to participate and receive points. The educational outcomes of CPD are much more difficult to measure as CPD does not always directly relate to current practice, but also extends the capacity of doctors to make wiser judgments in the situations of uncertainty they may encounter in their professional future.\(^1\)

There are large variations in content of medical education as well as in the process of assessment among different countries due to differences in teaching tradition, culture, socio-economic conditions, the health and disease spectrum, and the different forms of health care delivery systems worldwide. In some countries evaluation of CPD/CME has legal or professional obligations, whereas in others CPD/CME is on a voluntary basis.
only.\textsuperscript{2} In some countries the increasing concern that CPD of medical doctors should be adequate has led to demands for systematic recertification, entailing the development of systems for examination or other types of re-assessment.\textsuperscript{2}

International standards and the need for a common language among CPD/CME stakeholders (ie, practicing doctors, professional organizations, CPD/CME providers/educators, regulating bodies, and health care system authorities) is an important framework serving as a model for evaluating and accrediting CPD/CME educational programs. This is particularly important in the era of high mobility of population and health care providers but also with the advancement of new technologies and methodologies for the evaluation of educational goals. These standards can be used also as a basis for national and regional recognition of educational activities.

Today there are numerous national and several international systems for CPD/CME evaluation, all seeking to ensure that medical meeting planners, congresses, symposia, and CME events focus on the ultimate objective of bringing health care professionals together to disseminate recent research findings, therapeutic advances, and scientific discoveries on a global scale, while respecting national and international standards and criteria of development, delivery, harmonization, and protection of CPD/CME.

National systems, when present, may have high variability in requirements, evaluation, and assessment processes, as well as only voluntary—or on the contrary—legal or professional obligations towards CPD/CME.\textsuperscript{3} Some European countries have adopted the supranational-international guidelines for their national use, therefore this paper will not detail each of these systems.

\textbf{A. International Systems and Strategies to Evaluate CPD/CME}

Supranational systems, although not imposing their strategies to individual countries, work on the harmonization of guidelines and unification of standards of the evaluation of CPD/CME in order to unify requirements, standards, and ultimately the quality of CPD/CME in countries where difference in language, traditions, and medical education is a reality. International systems vary in detail, nevertheless there are many common features of content and process that allow international mutual recognition of activities in professional development. Some of these systems group according to geographical location (EACCME, ACCME), whereas others are more global in efforts to reach a wider range of international stakeholders (SWME, GAME).

\textbf{The European Union of Medical Specialties}

The European Union of Medical Specialties (UEMS), created in 1958, is a nongovernmental voluntary organization comprised of national medical organizations. The UEMS represents medical specialists in the European Union and in associated countries.\textsuperscript{4}
With a current membership of 35 countries and 39 specialist sections, the UEMS represents approximately 1.5 million medical specialists working in Europe.

In January 2000, the UEMS established the European Accreditation Council for Continuing Medical Education (EACCME®), with the aim of encouraging high standards in the development, delivery, and harmonization of CME. The EACCME provides international accreditation of CME events by establishing a system for the international acceptance of CME credit points. They use a common “CME currency:” the European CME credit (ECMEC).

The EACCME acts as an “umbrella organization,” acting as a bridge and delegating the active accreditation process to:

- The relevant UEMS specialist sections or European Boards of the specialty involved, the actual educational bodies of the UEMS Sections; and
- The national accreditation authorities, when existent, of the country where the event takes place.

The added value of the EACCME is in the international dimension that is given to an event. The CME accreditation granted by the EACCME guarantees participants from throughout the world that the CME content is of a high quality, and for European doctors, that this quality will be recognized in their home country.

The American Medical Association recognizes UEMS-EACCME credit points for live educational events and for e-learning materials, and the Royal College of Physicians and Surgeons of Canada recognizes UEMS-EACCME credit points for live educational events only.

Activities that are solely national do not qualify for European accreditation and have to be evaluated by their national authority.

In the UEMS policy paper from 2001, the Basel Declaration on Continuing Professional Development, the UEMS defined CPD as “the educative means of updating, developing, and enhancing how doctors apply the knowledge, skills, and attitudes required in their working lives.” The UEMS remains committed to this concept that encompasses educating medical specialists for the wider responsibilities required for specialist medical practice. Although the UEMS recognizes that CPD incorporates and goes beyond CME, it draws attention to its policy—that doctors should employ a range of educational methods and not rely solely on formally accredited CME for their continuing education. At the same time, however, the UEMS acknowledges the need for CME credits as a simple means of confirming involvement in CPD/CME.
In 2010, the UEMS created the European Accreditation Council for Medical Specialist Qualification (EACMSQ), which aims at harmonizing the content of national postgraduate training according to European standards of medical training developed by the UEMS specialist sections and boards.

In 1991 the UEMS created the European Boards (EB), which represents educational bodies in different specialities. The European Board of Ophthalmology (EBO), which was created in 1992, works closely with the EACCME in the evaluation of CME through its CME committee.\textsuperscript{7}

The EBO’s activity goes beyond CME accreditation: the educational committee organizes the comprehensive EBO Diploma examination each year, the residency review committee ensures high standards of teaching in member centers, and the EBO grants allow young ophthalmologists to visit other countries and centers. By expanding these activities the EBO has gained worldwide respect.

The European Network of Education for Trainees (ENET) is an EBO initiative proposing a teaching program for European residents by building a European network of European teachers and teaching programs proposed by different national and international scientific societies covering all fields of subspecialties in ophthalmology.\textsuperscript{8} The mechanism that will guarantee the quality of this teaching program is “accreditation.” This process called the EBO accreditation can be only initiated after EACCME’s official accreditation.

\textit{The American Council for CME}

The American Council for CME (ACCME) was founded in 1981 succeeding the Liaison Committee on CME and the American Medical Association’s Committee on Accreditation of CME.\textsuperscript{9} The ACCME’s goal is to create a national accreditation system with the purpose to serve as a voluntary, self-regulatory body recognizing institutions and organizations offering CME accreditation. The ACCME recognizes state and territory medical societies, state accrediting bodies that accredit institutions, and other intrastate organizations that provide CME activities primarily to learners from their state or contiguous states—as opposed to ACCME-accredited providers, which offer CME primarily to national or international audiences. These intrastate providers include community hospitals, state specialty societies, and county medical societies.

Since 1983, the ACCME has implemented a process for recognizing state and territory medical societies as accreditors. The recognition process is a partnership between the ACCME and the state/territory medical societies that empowers the state system to serve as accreditors for intrastate providers.

The ACCME develops rigorous standards to ensure that CME activities across the country are independent, free from commercial bias, based on valid content, and effective in
meeting physicians’ learning and practice needs. The process of accreditation run by the ACCME is, of, by, and for the profession of medicine. These standards, which are considered a national model, include the Accreditation Criteria, Standards for Commercial Support, and ACCME Policies.

State and territory medical societies that are designated as ACCME Recognized CME Accreditors must meet the ACCME’s Recognition Requirements designed to maintain a uniform, national system of CME accreditation, helping to assure physicians, state legislatures, CME providers, and the public that all CME programs within the ACCME system are held to the same high standard.

Rome CPD/CME Group

The Rome CPD/CME group is an international group of CPD/CME experts working to bridge national boundaries to build common ground among accreditation systems around the world. The Rome Group aims to harmonize CPD/CME systems worldwide and facilitate international reciprocity of CME credits, with the vision of elevating the values of quality, accessibility, and accountability in global CME. Established in 2003, the group meets on an annual basis in Rome, Italy, and is currently represented by members from eleven different countries, spanning four continents across the globe. The Rome group defines CPD as: "the educative means of updating, developing, and enhancing how doctors apply the knowledge, skills, and attitudes required in their working lives. This includes CME, professional and managerial (non-clinical) competencies, and all elements of good medical practice."

The Society for Worldwide Medical Exchange

The Society for Worldwide Medical Exchange (SWME) was founded in 2009 with the mission of expanding access to CME worldwide and improving health care in developing countries. As a non-profit organization, SWME has been dedicated to developing medical education in key specialty areas in collaboration with major medical associations, as well as universities, hospitals, and other educational providers. With an emphasis on effective, local and sustainable health care delivery, SWME also supports health care providers in developing countries through physician sponsorship and educational grants.

A fruitful collaboration between SWME and the Rome CPD/CME Group has lead to the Red Book for Medical Meetings, a comprehensive guide aiming at transparency and efficiency for medical meeting planners, CPD/CME providers, and academic institutions on the regulations of sponsorship for medical meetings and CPD/CME accreditation systems around the world. The book offers an international compendium of pharmaceutical
regulations, CPD/CME requirements, and industry regulations that are broken down on a country-by-country basis.

**Global Alliance for Medical Education**

Founded in 1995 and with over 130 members, the Global Alliance for Medical Education (GAME) is an international organization of leaders dedicated to the advancement of innovation in CPD/CME worldwide with the goal of improving patient care. Members of GAME meet annually to discuss various issues related to CPD/CME.

**B. Tools Currently Used to Evaluate CPD/CME**

There is a variety of assessment tools in current use (Table 1) that are described in more detail in chapter 14.

**Table 1. Tools Used for CPD/CME Evaluation**

<table>
<thead>
<tr>
<th>Tools Used for CPD/CME Evaluation</th>
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<tbody>
<tr>
<td>Credit accumulation</td>
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<tr>
<td>Learning portfolio</td>
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<tr>
<td>Self assessment</td>
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<td>Criterion reference method</td>
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<tr>
<td>Chart audits</td>
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<tr>
<td>Patient centered care (ISO certification)</td>
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<tr>
<td>Site visits by peers on an agreed protocol</td>
</tr>
<tr>
<td>Feedback from participants</td>
</tr>
<tr>
<td>Tools used for CPD/CME</td>
</tr>
</tbody>
</table>

**Conclusion**

In view of the diversity of national and regional educational systems and CPD/CME evaluations worldwide, it is important and of great interest to the medical community to implement supranational systems to unify CPD/CME evaluation guidelines and standards in order to ultimately improve the quality of CPD/CME. These supranational systems vary in some detail in their content and processes, however, they have many common features allowing for agreement based on the mutual recognition of activities in professional development.

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