



## Best practices in ophthalmic education

This special edition of *Annals of Eye Science* comprehensively addresses many of principles and changes that have occurred over the past couple of decades. The fairly new concept of competency-based training represents a shift from the old paradigm of showing that training programs are capable of teaching to showing that trainees can actually do what is expected of them. “Competence” is not just the ability to do something, but to do it well. In other words, teaching doesn’t equal learning! We must maximize our teaching abilities in lecture, clinic and surgery to enhance every learning opportunity. In this issue, Palis (1) provides tips on improving lecture skills; Neufeld and associates (2) define principles of good surgical teaching. Mayorga (3), Yang and associates (4) both describe a relatively new concept called the flipped classroom that is designed to maximize the expertise of the teacher and enhance higher order cognitive learning in students. Each of these articles contains many valuable concepts that if employed, will enhance learning.

Competency-based training has also necessitated development of new valid and reliable competency assessment tools. Importantly, these tools provide a more objective assessment of competence and should serve as teaching tools as well. Most countries do not use assessment tools to determine resident competence in surgical procedures and those that do still rely on minimum numbers of cases as a measure of competence. This system must be replaced by valid and reliable measures of competence rather than simply by subjective impression and the number of cases performed. Golnik *et al.* (5) describes and summarizes many new competency assessment tools. To facilitate competency attainment, the USA has recently instituted the “Milestones Project” designed to closely follow a resident as they achieve competency milestones throughout their training (6). Objective assessments are used when possible to gauge progress and provide specific formative feedback in a more-timely fashion. In this issue, Valdez García and associates (7) provide guidelines for effective feedback.

There is also increased emphasis on the “soft-skills” of being a good physician. In the late twentieth century both the Royal College of Physicians and Surgeons of Canada and the USA Accreditation Council for Graduate Medical Education (ACGME) developed initiatives designed to improve medical education (8,9). They emphasized the many qualities necessary to be a good physician and also emphasized the need to show that doctors are able to provide competent care. These initiatives were very similar and emphasized the need for competency at more than medical knowledge and procedural skill. This philosophy has necessitated the need for new methods of both teaching and assessing these competencies. Lauer and associates (10) provide a more detailed discussion of the qualities required to be a “Good Doctor”.

Ophthalmic medical education should start in medical school extend throughout the ophthalmologist’s career. Ophthalmology is part of most medical school curricula. However, with the increasing volume of medical knowledge, medical school curricula have often marginalized ophthalmology and indeed the majority of USA medical schools no longer have an ophthalmology clinical rotation requirement (11)! Ophthalmic educators should learn from the USA experience by being vigilant and involved with their medical school curriculum committees. After graduation from residency training some countries have an individual standardized certification examination that may include a combination of a multiple-choice test of ophthalmic knowledge, a case-based oral examination, or an objective structured clinical examination. However, many countries have no standardized individual certification requirements. In 1995, the European Board of Ophthalmology started a voluntary assessment program that includes both written and oral components. This has been increasingly utilized and has been adopted by some European countries as their certification examination. The International Council of Ophthalmology (ICO) has been offering international examinations of ophthalmic knowledge for 20 years. These exams are available for any ophthalmologist and have been taken by more than 22,000 individuals. The number of candidates has been increasing rapidly with just over 6,000 examinations conducted in 2016 alone.

Ophthalmic education cannot stop after completing formal residency and fellowship training. Proliferation of knowledge, diagnostic techniques and surgical procedures mandate life-long learning. Thus, continuing professional development (CPD) that includes continuing medical education (CME) and other competencies such as professionalism and communication skills is essential. This has created an opportunity for ophthalmic societies to provide this service (and to profit from it!). CPD may take many forms and with the advent of e-learning the cost and ease of access should be improving. Many well-organized ophthalmic groups offer webinars and other forms of e-learning. Filipe and associates (12) define principles of effective CPD.

Evaluation of the individual ophthalmologist's skills is not enough to assure high quality eye care. Both faculty and program evaluation must become part of the culture of ophthalmic education. Faculty evaluation is especially ignored around the world. Sometimes this is related to cultural factors; this must change! The quality of ophthalmology residency training programs varies widely internationally, regionally and even within countries. Lauer (13) provides principles of faculty and program evaluation in addition to providing examples of assessment methods. Furthermore, most countries have no standardized program accreditation guidelines or mechanism to review program quality. An international and/or national accreditation process that requires standards of structure, process and achievement, self-assessment and review by outside experts is desperately needed in many areas of the world. To facilitate international accreditation, the ICO recently completed "International Guidelines for Accreditation of Ophthalmology Residency Training Programs" (14). At present, the ICO is piloting an international accreditation system. Golnik (15) covers the rationale and process of ophthalmology training program accreditation.

Zheng *et al.* (16) describes and summarizes that the good communication with patients is as important as the medical knowledge for the residents on. Liu and associates (17) compare the different ophthalmology training system between China and America. Ge and Luo (18) covers the development of Chinese medicine system and medical education.

The intent of all of the educational principles, techniques and assessments described in this special issue of *the Annals of Eye Science* is to produce better ophthalmologists and ultimately better patient care. We hope they can be utilized in both your teaching and your training program.

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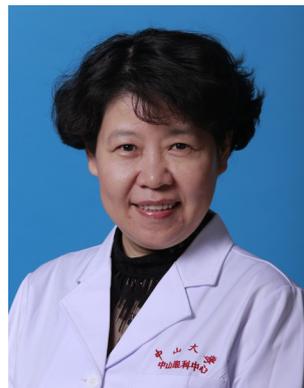
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