



# Developing leadership skills in young ophthalmologists

Catherine Green<sup>1,2</sup>, Alp Atik<sup>1</sup>, Margaret Hay<sup>2</sup>

<sup>1</sup>Royal Victorian Eye and Ear Hospital, Melbourne, Australia; <sup>2</sup>Monash Institute for Health and Clinical Education, Monash University, Melbourne, Australia

*Contributions:* (I) Conception and design: All authors; (II) Administrative support: None; (III) Provision of study materials or patients: None; (IV) Collection and assembly of data: All authors; (V) Data analysis and interpretation: None; (VI) Manuscript writing: All authors; (VII) Final approval of manuscript: All authors.

*Correspondence to:* Catherine Green, AO, FRANZCO, MMedSc, MSurgEd. Level 5, 182 Victoria Parade, East Melbourne, Victoria 3002, Australia. Email: seagreen@bigpond.com.

**Abstract:** In a rapidly changing world, there is an increased need to cultivate ophthalmologists who are not only technically capable but also possess the leadership skills required to be at the forefront of change. Ophthalmologists make daily frontline decisions that determine the quality and efficiency of care based on their leadership qualities. However, they also educate, advocate, perform research, run departments and work in practices—all of which require the practice of effective leadership. Although the need for ophthalmic leadership has been recognised, few training programs offer leadership skills as a component of their core curricula, focussing on clinical knowledge with less emphasis on teaching of non-clinical professional competencies. Clinicians who participate in leadership development are more likely to feel empowered to provide patient-centred care, develop a greater self-awareness and confidence to initiate positive change and promote better team alignment. In turn, the ophthalmic profession collectively benefits from effective leadership as organizations are better run, issues are advocated more globally and challenges are addressed holistically by ophthalmologists who are not merely technically capable surgeons or researchers, but effective communicators and collaborators. In this paper, we explore the role of leadership in the spheres of healthcare and ophthalmology. We discuss the value of leadership across clinical, educational and organisational levels, with specific emphasis on the current state of development and conclude with a series of recommendations to ensure the continued development of effective ophthalmic leaders into the future.

**Keywords:** Ophthalmology; leadership; education

Received: 01 July 2019; Accepted: 19 September 2019; Published: 08 November 2019.

doi: 10.21037/aes.2019.09.02

**View this article at:** <http://dx.doi.org/10.21037/aes.2019.09.02>

Leadership courses designed specifically for health professionals are increasingly sought, so addressing the issue of leadership development for young ophthalmologists is timely. There is widespread acknowledgement, driven by technological and social pressures, that the medical professionals of today and of the future require a much broader skill set than just clinical knowledge and expertise. The importance of these skills and competencies have been acknowledged by the medical profession and formally incorporated into curricula and frameworks, for example the CanMEDS framework outlined by the Royal College of Physicians and Surgeons of Canada (1) and

the Core Competencies of the Accreditation Council for Postgraduate Medical Education (ACGME) (2).

The increasing demand from clinicians themselves to upskill in leadership competencies comes from those who have been thrust into leadership roles without the requisite skills to perform optimally in these roles (3). Although healthcare organisations around the world have emphasised the need for effective leadership at all levels within clinical and academic fields (4), few training programs offer leadership skills as a component of their core curricula, despite the growing body of evidence that medical leadership plays a critical role in the effectiveness

of organisational change in the health sector (5). In this paper, we explore leadership in general, in the context of health care generally, and in ophthalmology in particular. We discuss its value across clinical, educational, and organisational levels for ophthalmology, and conclude with a series of recommendations to ensure the continued development of effective leaders in ophthalmology into the future.

### What is leadership?

Leadership is complex. It is said that there are as many definitions of leadership as those who have tried to define it (4,6). We probably struggle to define it not only because it involves both being and doing, but because it is as diverse as the humans who lead and who are led, and the context in which they find themselves. Leadership is relevant in every facet of society and is underpinned by culture. Difficult as it may be to define, most people are able to recognise both good and bad leadership, probably because we assess leadership using global values-based judgements.

A commonly quoted definition of leadership is: “A process of social influence in which one person can enlist the aid and support of others in the accomplishment of a common task” (7). Leadership definitions usually have three common components: vision creation, the ability to engage others and the ability to create a shift towards shared goals. Kotter describes leaders as people who define what the future should look like (i.e., define the vision), align people with that vision, and inspire them to make it happen, despite the obstacles (8).

There are myriad theories of leadership. One of the earliest was the “Great Man Theory” which hypothesised that leaders are born, not made and will arise when there is great need. It is now recognised that leadership is comprised of definable skills that can be developed through experience, observation and education (4). Similarly, there are different theories on the markers of leadership, which can be categorised into three overlapping categories (9,10):

- ❖ Those which focus on personal qualities or personality of the leader as an individual;
- ❖ Those which relate to the interaction of the leader with other people;
- ❖ Those which seek to explain leadership behaviours in relation to the environment or system.

Leadership development is simultaneously both personal and professional development. It is experiential and iterative. It is the epitome of adult learning, in which:

- ❖ Emerging leaders are involved in planning their learning;
- ❖ Experience provides the basis of learning activities;
- ❖ Learning has immediate relevance and impact to their work and/or personal life and;
- ❖ The learning is problem-centred rather than content-oriented (11).

### Leadership in the context of healthcare

Because clinicians have technical knowledge and clinical expertise, they are not only well equipped to make decisions that determine the quality and efficiency of care, but also to make sound strategic choices (12). It has been demonstrated that clinicians who participate in leadership development are more likely to feel empowered to influence the provision of patient-centred care, develop a greater self-awareness and confidence to initiate positive change and promote better team alignment (13). A study conducted in the United Kingdom demonstrated that hospitals with greater participation in hospital leadership scored about 50% higher on important drivers of performance relative to hospitals with low levels of clinical leadership (14).

Leadership in ophthalmology is required in various contexts, not just clinical and surgical, but at the institutional level in hospitals and healthcare organisations, as well as in research, education, governance and advocacy.

Although the need for and value of clinician leadership is well recognised, most medical and surgical curricula remain focussed on clinical knowledge and skills, with less emphasis on teaching and assessment of non-clinical professional competencies. This may lead ophthalmologists with no leadership training to feel less confident to take on leadership roles: they have undertaken years of training for their clinical role, so many assume that months or years of training are needed before being able to become a competent leader (12). As a result, opportunities to influence positive change in an ophthalmologist’s sphere of influence may not be fully realised. It is also not uncommon for clinicians to find themselves thrust into leadership roles, only to find that their training and career development have not provided them with the requisite skills to perform optimally in these roles (3).

### Leadership in ophthalmology

Although some of the knowledge and skills that facilitate effective leadership are generic, ophthalmic leaders may

require specific skills, depending on the context in which they are working. Ophthalmic leadership can be considered from a range of perspectives, including:

- ❖ Generic leadership skills and attributes;
- ❖ Surgeons as leaders: leading in surgical teams;
- ❖ Clinical leadership: ophthalmologists participating in healthcare governance and management;
- ❖ Ophthalmologists as educators: teaching, training and assessment;
- ❖ Ophthalmologists as educationalists: promoting educational theory, undertaking surgical education scholarship;
- ❖ Ophthalmologists as education leaders: setting strategy and direction for surgical education, influencing policy and decision-makers;
- ❖ Ophthalmologists as advocates: leading national and international policy issues;
- ❖ Ophthalmologists as innovators: leading novel ways of doing things and progressing the field.

The career trajectory of a young ophthalmologist involves three inter-relating and overlapping spheres of leadership, although a formal curriculum for these aspects is not easily identifiable. Early in their career, young ophthalmologists must *lead themselves* to learn the technical content and skills required in their area of practice. They need to motivate and take care of themselves both physically and mentally. The current prevalence of impaired wellbeing in young trainees indicates that the ability to *lead themselves* in the area of selfcare is lacking in at least a proportion of current trainees across a range of medical specialities. Concerns for trainee wellbeing has led to calls for the inclusion of mental health and selfcare competencies in training programs.

During these early stages of training, young ophthalmologists may also be given minor leadership roles, for example as trainee representatives in committees. As they progress through training and are given additional responsibilities, they may start to run clinics and operate under more remote supervision and eventually independently. Throughout these times, they will be expected to *lead others* in clinics and operating rooms, to ensure optimal and efficient healthcare is delivered to patients in a cohesive and team-oriented manner. But how are these skills of leading others acquired? And what aspects of their training prepare them to lead complex teams in complex health care environments?

Finally, as the young ophthalmologist becomes increasingly experienced, they will have opportunities to assume leadership positions within their hospitals as

well as on both a national and international level through areas such as advocacy, quality improvement and research. These higher order leadership skills are often assumed to be inherent in the clinically competent advanced trainee and consultant, yet their acquisition is largely informal and opportunistic. The limited degree of formal leadership upskilling during ophthalmology training may be hindering the development of future ophthalmologist leaders who possess the requisite skills to lead the profession into the future. What are the competencies and attributes of future leaders in health care, and how can we encourage and facilitate their development through training?

### Developing leadership skills

Effective leadership can be considered as how one is (personal attributes), the things one knows and can do (skills and experience) and the things one does (practices and outcomes). Leadership and management overlap, but they have many distinctions. Contemporary leadership theory has acknowledged that in practice, the most effective people in organisations are both managers and leaders (9,15-17), acknowledging the need for management skills as a sub-component of leadership. Also, leaders need to work with managers, so understanding what managers do and the challenges they face enhances the effectiveness of these working relationships. Furthermore, management skills can be systematically learned and can provide structure for new leaders to plan their development. So, whilst leaders have management competencies, leadership itself extends well beyond the competencies of management alone. The business literature is replete with articles differentiating leadership from management (8,9,18) (*Table 1*).

There is also increasing differentiation between traditional and effective leadership. Effective leadership requires a range of attributes, skills and experiences (listed in *Table 2*) that incorporate many of the skills of traditional leadership, yet go beyond these in the required personal attributes competencies.

In effective leadership the leader leads collectively through engagement, as listener, and as enabler of others to reach their potential, and therefore the potential of the team and its function. In effective leadership, personal attributes have salience along with other leadership competencies. In contrast, traditional leadership is denoted by a position on a hierarchy and title, with the leader as the independent decision maker team members follow, and individualistic approaches to performance management and

**Table 1** Differing skills and abilities of managers and leaders (9,18)

Managers	Leaders
Produces order and consistency through	Produces change and movement through
<ul style="list-style-type: none"> <li>• Planning and budgeting</li> <li>• Problem-solving</li> <li>• Organising and staffing</li> <li>• Controlling and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Setting direction</li> <li>• Problem defining</li> <li>• Building commitment</li> <li>• Motivating and sustaining</li> </ul>

**Table 2** The attributes, skills and experiences of effective leadership

Effective leadership
Attributes
<ul style="list-style-type: none"> <li>• Self-awareness</li> <li>• Social awareness</li> <li>• Self-regulation</li> <li>• Communication</li> <li>• Resilience</li> <li>• Ethics</li> <li>• Innovativeness</li> </ul>
Skills/experience
<ul style="list-style-type: none"> <li>• Subject knowledge/technical competence</li> <li>• Governance</li> <li>• Managing meetings</li> <li>• Negotiation skills</li> <li>• Managing conflict</li> <li>• Budgeting</li> <li>• Advocacy</li> <li>• Influencing others</li> <li>• Change management</li> <li>• Strategic planning</li> <li>• Project management</li> <li>• Time management</li> <li>• Presentation skills</li> </ul>

incentivisation. Personal attributes have less value.

### How do young ophthalmologists currently learn leadership skills?

It is not unreasonable to posit that most senior

ophthalmologists actively engaged in training the next generation of the profession have experienced the traditional form of leadership during their training and development. In contrast, the junior trainees and young consultants of today are more likely to have experienced the approaches of effective leadership in their development. How can these distinct contexts and their inherent differing expectations of leadership behaviours be reconciled through training? Although modern curricula and continuing professional development frameworks include leadership and management learning outcomes, a greater emphasis is still placed on the development of clinical and technical skills (19-23). The result is that the majority of leadership learning occurs through “osmosis”: via role modelling, mentoring and experiential learning, some of which may be self-initiated and some dependent on opportunity, for example being invited to join a committee or being elected as a peer representative. But are these relatively *ad hoc* approaches sufficient to ensure the development of effective ophthalmic leaders for the future? What can we learn from leadership training in the world of business, where leadership training has long been core education.

### Lessons from leadership training in business

Executive leadership programs in the business industry focus on a variety of skillsets to develop leadership qualities by strengthening analytical skills, management acumen and interpersonal skills. These domains can be applied to an ophthalmic setting. For example, a common theme in leadership streams of business administration programs is foundational skill-building, which translates into core ophthalmic knowledge. Understanding cross-functional business to develop an end-to-end view of business and how all the functions in a company inter-relate can also be applied to ophthalmology. Effective ophthalmic leaders need to be able to see issues from multiple viewpoints—

those of healthcare workers, patients, policy-makers and special interest groups (e.g., industry). They must be able to understand the system within which they work and the economic and socio-political forces shaping that environment. They must be able to formulate a strategy and implement this strategy in a cohesive way, with buy-in from all key stakeholders. To do this, they must both motivate those they lead and make them accountable for their work. Similar to the business world, they must be able to lead change, identifying what needs to be changed within their framework and how this can be accomplished. They must also display qualities of personal leadership, developing self-awareness and emotional intelligence to support their organisation's needs and obligations. To this end, they must be effective listeners, adept negotiators and confident decision-makers—all domains that are formally taught in the business world as core competencies required for effective leadership.

### Leadership development in ophthalmology

Recognising the gap in leadership training, the ophthalmic profession has been highly pro-active in investing in leadership development. This initiative started in the United States through the American Academy of Ophthalmology, which launched its Leadership Development Program in 1998, with the goals of identifying individuals with the potential to become effective leaders in ophthalmology, providing orientation and skills to allow potential leaders to promote ophthalmology locally, nationally and internationally, and facilitating the promotion of program graduates into leadership positions (24). Since then, leadership development programs (LDPs) in ophthalmology have expanded around the globe, with programs run by international and national ophthalmic organisations.

To maximise their effectiveness, leadership programs should be based on adult learning principles (11), acknowledging that participants are independent and self-directing, have extensive lived experiences that provides a rich resource for learning, value learning that integrates with the demands of everyday life, and prefer immediate, problem centred approaches. Leadership programs usually incorporate a combination of methods to train and assess leadership skills (4,25).

These may include:

- (I) *Mentoring*: off-line help by one person to another in making transitions in knowledge, work and thinking;
- (II) *Coaching*: a shorter-term, goal-oriented process aimed at performance enhancement in specific areas;
- (III) *Networking*: providing a wide range of contacts, perspectives and information;
- (IV) *Stretch assignments*: the individual is required to work outside their comfort zone to learn new skills, knowledge or behaviours;
- (V) *Action learning*: joint problem-solving of issues that arise in the workplace, during real-life projects or by observing and working with others;
- (VI) *Multi-source or 360-degree feedback*: views of peers, managers and other team members about leadership skills and competencies are obtained, collated and fed back to the individual, preferably by an accredited professional trained in this process.

Although the ophthalmology LDPs around the world (24,26-29) vary in structure, content and length, all cover the key aspects of effective leadership: self-awareness, awareness of others, communication skills, management skills, governance and advocacy, using a combination of the teaching methods outlined above. A key component of the programs is the requirement for participants to complete a self-directed project, the topic of which should be related to leadership, not clinical ophthalmology, and which fulfils the purpose of a stretch assignment. Although some components can be learnt through reading or online study, much of leadership is experiential, which makes face-to-face interactive learning essential. This also creates opportunities for networking, as well as the creation of a community of practice (30), where learning takes place through joint enterprise, shared repertoire and mutual engagement. In contrast to training, which teaches proven solutions to known problems, effective leadership development is geared towards the future and involves learning the skills to tackle as yet undefined problems (31), aiming to prime participants for a lifelong journey of learning and self-transformation.

Whilst ophthalmology LDPs are now well established and continue to develop and evolve, there have been challenges to overcome, and challenges remain. The greatest of these is limited time for busy clinicians, both faculty and participants, and resourcing. It is known that clinicians may be sceptical about the value of spending time on leadership and there is discomfort with the difficulties proving its impact. Clinicians may have established views of what constitutes robust evidence—rooted in evidence-based medicine for clinical interventions—and are less familiar

with qualitative research methods, which they may regard as fundamentally ambiguous, even weak (12).

### Measuring the impact of leadership training

A recently published scoping review (32) showed that the impacts of professional development programs for health professionals are measured inconsistently, and the outcomes that are measured focus on the easily measurable, and immediate to short-term rather than medium to long-term impacts. Important impacts like career development, collaboration, professional relationships, personal and organisational changes are rarely measured. There is an identified need across all continuing professional development programs for health professionals, including those focused on leadership training, for quality evaluation to be undertaken. This is important not only to assist in continuous improvement of the programs, but also to ensure that individuals and organisations can be convinced to invest in such training. For leadership development, adequate financial, human and time resources are required to ensure these programs are sustainable, and impactful over the long term at the personal, professional, and organisational levels. Given that ophthalmology is leading the way in leadership training implementation through the LDPs, we also have the potential to lead scholarly evaluations of such programs to ensure impact and return on investment of such programs.

Kirkpatrick's framework provides a structure through which to approach evaluation of the impact of LDPs (33). The framework evaluates effectiveness at four levels:

- (I) Reaction (satisfaction or happiness);
- (II) Learning (knowledge or skills acquired);
- (III) Behaviour (transfer of learning to the workplace) and;
- (IV) Results (impact on society).

It is not difficult to obtain data at for Kirkpatrick level 1. Results of surveys of participants for shows high satisfaction and strong acknowledgement of the need for such programs. In terms of demonstration of learning through transfer to the workplace, there have been hundreds of ophthalmology LDP graduates around the world assuming leadership roles in their clinical and medico-political organisations, and it is through them that new LDPS have been established. Whilst it is likely that participants selected into LDPs have demonstrated an aptitude for leadership, many have reported accelerated progression to positions they would never have previously considered (25).

The most powerful lens through which to evaluate

effectiveness is the impact on society. Ophthalmologists strive to improve access to the highest quality eye care in order to preserve and restore vision for the people of the world (34). Many LDP projects have directly achieved this. More difficult to measure is the indirect benefit to patients and the community from engagement of younger ophthalmologists earlier in their careers and providing them with the opportunity to accelerate the development of vital leadership, management and advocacy skills that they will continue to apply throughout their entire career (25).

### The future of leadership training for young ophthalmologists

Every ophthalmologist will need leadership skills during their career—be it on a micro level in their relationship with patients, or in the operating room, the meso level at running hospital or research departments or macro level in national or international leadership positions. However, ophthalmic practice and the professional environment are evolving at a rapid rate, through technology, treatment, health records, payment, quality improvement programs and multidisciplinary care. As our understanding of disease and healthcare delivery expands, so does the responsibility of ophthalmologists to be at the forefront as leaders of such change.

There is also an acknowledged shift in the expectations of young trainees entering speciality training around the nature of leadership they desire and expect. Now more than ever, there is a need for a new generation of leaders who can promote strategic, cultural and scientific alignment in the face of rapid development. We thus need to prioritise the cultivation of effective leadership skills (communication, team building, collaboration and deliberate decision-making) in young ophthalmologists. This leadership development should begin in medical school and be nurtured during ophthalmology training, so that we produce not only technically-gifted and knowledgeable but also highly professional ophthalmologists who can actively and effectively lead the future of eye care.

Young ophthalmologists are at a unique juncture of clinical practice, scientific research, health policy and healthcare delivery. While medical leaders in the past (i.e., the traditional leaders discussed earlier) were selected on the basis of their prominence as master clinicians or star researchers, these are no longer sufficient qualities to tackle the challenges of effective leaders in the current healthcare climate. Additional skills must be developed and

embedded in the next generation of ophthalmologists, to ensure a positive influence on organisational culture and performance that promotes and embraces evolution and innovation in response to change.

This requires the following:

- (I) The development of a diverse pipeline of future ophthalmic leaders from within the current cohort of young ophthalmologists. The pool of potential leaders should be expanded to allow emerging leaders to take on progressively increasing responsibility and leadership positions. Health organizations and bodies should identify potential effective leaders and engage them in task forces, committees, retreats and also in formal leadership training programs.
- (II) Active teaching and nurturing of explicit and effective leadership skills, attributes and attitudes, with frequent, structured feedback to emerging leaders to allow assessment of leadership potential, as well as mentoring and succession planning. Ongoing support from executive coaches and mentoring from experienced ophthalmic leaders should be provided to increase emotional intelligence, facilitate decision-making processes and enhance communication and collaboration skills.
- (III) Creation of the optimum culture, which includes ensuring that the right people are chosen for practice in this field to begin with. No longer should selection onto ophthalmology training programs be based solely on curriculum vitae, research or personal contacts. Rather, a more holistic selection process using validated behaviour-based selection tools that include the measurement of effective leadership potential should be used. This will strengthen the profession by training and developing not only technically capable but also professionally engaged leaders.

Whilst much has already been achieved, progress will be accelerated and deepened by ensuring that teaching, learning and assessment of leadership skills are incorporated into all curricula, spanning the continuum from undergraduate medical training, through post-graduate specialist training to continuing professional development. It is important that career pathways be created that acknowledge and reward effective leadership. Medicine and surgery have learnt a great deal from the aviation and other industries to improve clinical quality and safety; by the same token, there is much to be learnt from the well-established literature on effective leadership in other spheres, most

notably, business, and we should be striving to innovate through collaboration with other professional groups.

## Acknowledgments

None.

## Footnote

*Conflicts of Interest:* The authors have no conflicts of interest to declare.

*Ethical Statement:* The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

## References

1. Royal College of Physicians and Surgeons of Canada. The CanMEDS Framework: Royal College of Physicians and Surgeons of Canada, 2014. Available online: <http://www.royalcollege.ca/portal/page/portal/rc/canmeds/framework>
2. Accreditation Council for Graduate Medical Education. ACGME Mission, Vision, and Values: ACGME; 2014. Available online: <https://www.acgme.org/acgmeweb/>
3. Sklar DP. Leadership in Academic Medicine: Purpose, People, and Programs. *Acad Med* 2018;93:145-8.
4. Patel VM, Warren O, Humphris P et al. What does leadership in surgery entail? *ANZ J Surg* 2010;80:876-83.
5. Ham C. Improving the performance of health services: the role of clinical leadership. *Lancet* 2003;361:1978-80.
6. Bass B. *Stodgill's Handbook of Leadership: A Survey of Theory and Research*. New York: Free Press, 1981.
7. Chemers MM. *An Integrative Theory of Leadership*. New York: Psychology Press, 1997.
8. Kotter JP. What leaders really do. *Harv Bus Rev* 1990;68:103-11.
9. McKimm J, Swanwick T. Educational Leadership. In: Swanwick T. editor. *Understanding Medical Education: Evidence, Theory and Practice*. 2nd ed. West Sussex: John Wiley & Sons, 2014.
10. Swanwick T, McKimm J. Faculty development for leadership and management. In: Steinert Y, editor. *Faculty Development in the Health Professions*. New York: Springer Publications, 2013.
11. Knowles M. *The Modern Practice of Adult Education*.

- From pedagogy to andragogy. 2nd ed. Englewood Cliffs: Prentice Hall/Cambridge, 1980.
12. Mountford J, Webb C. When Clinicians Lead: McKinsey & Company, 2009. Available online: <http://www.mckinsey.com/industries/healthcare-systems-and-services/our-insights/when-clinicians-lead>
  13. Stoller JK. Developing physician-leaders: key competencies and available programs. *J Health Adm Educ* 2008;25:307-28.
  14. Castro PJ, Dorgan SJ, Richardson B. A healthier health care system for the United Kingdom. *McKinsey Quarterly* 2008 (February).
  15. Blagg D, Young S. What makes a good leader? 2001 [cited 2008 23 May]. Available online: <http://www.alumni.hbs.edu/bulletin/2001/february/leader.html>
  16. Storey J. Leadership in Organisations: Current Issues and Key Trends. London: Routledge, 2004.
  17. Yukl G. Leadership in Organisations 5th ed. Upper Saddle River, NJ: Prentice Hall, 2002.
  18. Northouse P. Leadership: Theory and Practice 3rd ed. London: Sage, 2004.
  19. Accreditation Council for Graduate Medical Education. Ophthalmology: ACGME; 2016. Available online: <http://www.acgme.org/Specialties/Overview/pfcetid/13>
  20. European Board of Ophthalmology. Syllabus & Recommended Reading 2019. Available online: <https://www.ebo-online.org/ebo-exam/curriculum-recommended-reading/>
  21. International Council of Ophthalmology. Principles and Guidelines of a Curriculum for Continuing Medical Education in Ophthalmology 2006 [cited 2019 30 June]. Available online: <http://www.icoph.org/resources/33/Principles-and-Guidelines-of-a-Curriculum-for-Continuing-Medical-Education-in-Ophthalmology.html>
  22. International Council of Ophthalmology. International Council of Ophthalmology Residency Curriculum: International Council of Ophthalmology; 2013. Available online: [http://www.icoph.org/refocusing\\_education/curricula.html](http://www.icoph.org/refocusing_education/curricula.html)
  23. The Royal College of Ophthalmologists. Curriculum for Ophthalmic Specialist Training 2019. Available online: <https://www.rcophth.ac.uk/curriculum/ost/>
  24. American Academy of Ophthalmology. Leadership Development Program 2019. Available online: <https://www.aao.org/about/leadership-development/overview>
  25. Green C. Leadership Development in Ophthalmology: Investing in the Future of the Profession. *Pakistan Journal of Ophthalmology* 2017;33:123-5.
  26. All India Ophthalmological Society. Leadership Development Programme 2019. Available online: <https://www.aios.org/article-126-ldp-graduates.php>
  27. European Society of Ophthalmology. EuLDP 2019. Available online: <https://soevision.org/leadership-program/>
  28. Pan American Association of Ophthalmology. Leadership Course 2019. Available online: <https://pao.org/education/leadership-course/>
  29. Royal Australian and New Zealand College of Ophthalmologists. Leadership Development Program 2019. Available online: <https://ranzco.edu/home/ophthalmologists/leadership-development-program-2/>
  30. Wenger E. Communities of Practice: Learning, Meaning and Identity. New York: Cambridge University Press, 1998.
  31. Souba WW. Building our future: a plea for leadership. *World J Surg* 2004;28:445-50.
  32. Allen LM, Palermo C, Armstrong E et al. Categorising the broad impacts of continuing professional development: A scoping review. *Med Educ* 2019. [Epub ahead of print].
  33. Kirkpatrick D. Great ideas revisited: Revisiting Kirkpatrick's four-level model. *Training & Development* 1996;50:54.
  34. International Council of Ophthalmology. International Council of Ophthalmology San Francisco: ICO; 2017 [cited 2017 26 January]. Available online: <http://www.icoph.org/about.html>

doi: 10.21037/aes.2019.09.02

**Cite this article as:** Green C, Atik A, Hay M. Developing leadership skills in young ophthalmologists. *Ann Eye Sci* 2019;4:37.