

Academic Leadership In and Beyond Pediatric Surgery - A View from Hong Kong

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Abstract

Leadership is required in all professions and paediatric surgery is of no exception. It is different from management and certain specific qualities in personal traits, performance and collaboration are required. Owing to our professional training and job nature, paediatric surgeons are leaders intrinsically. Leadership opportunity exists in our clinical practice, research activities, educational programme and administrative duties. Academic surgeons are immensely exposed these opportunities. In most circumstances, leadership positions are taken up by the senior team members but these should not be monopolized by a single person. Junior surgeons are encouraged to take up some of the leadership roles in their early career. This does not only help to bring in new idea to an organization but also prepare them to become great leaders in future. In this article, we discuss leadership in and beyond our specialty based on the experience from two academic surgeons in Hong Kong.

Keywords: Academia; Leadership; Paediatric Surgery; Surgical teaching; Surgical research

'It is time for a new generation of leadership, to cope with new problems and new opportunities. For there is a new world to be won.' John F. Kennedy

'If I have seen further it is by standing on the shoulders of Giants.' Isaac Newton

What is leadership?

Leadership is needed and admired in any community; healthcare and academia are no exceptions. But what is special about academic leadership in healthcare in general and pediatric surgery in particular? There are different interpretations for leadership but the easiest one to understand is the ability to motivate others to achieve a common goal. Leaders help to organize and make progress. In most circumstances, they are usually heads or directors of the organizations but this is not universal.

The vitality of any community/discipline depends on its leadership, hence grooming the next-generation leaders must always be a top priority. While they should learn from great mentors and role models, they must tread new paths of the future. The modern leaders are different from their past masters. Table 1 lists some core leadership qualities. A good leader needs good management skills but leadership is more than management. Management may help persuade/bring people to do things they may not want to do but good leaders inspire team members to try new things. Leaders are expected to have a clear *vision* and are willing to sharing it with others. In addition, they are the ones to coordinate and balance the interests of all members in the team. A good leader should also possess the creditability and trust from all the team members: this requires both integrity of character and excellence in performance. He or she should be a good listener and can effectively communicate with others. Effective communication in the context of leadership would mean being attentive and showing a genuine interest in the conversation. The leader may not agree with the points raised by the team members but should respect and listen to the cortical and limbic messages. It is sometimes inevitable to have conflicts among different parties but a good leader would act to minimize conflicts. Very few are born to be great leaders but good leadership skills can be learnt and strengthened by training and personal experience (1).

Leadership positions, however, should not be monopolized by senior members or any sectors. Merit, fairness, transparency, equity and diversity are guiding principles for leadership advancement across different communities around the world, and different systems/disciplines including health and medicine. Senior leaders should mentor young leaders and have succession plans to sustain the

development of the unit. However, career advancement decisions are often made at higher levels of governance in the institution. Young surgeons should familiarize themselves with the organizational culture and institutional policies (2). Benchmarking should ideally be based on international and discipline-specific criteria; however, early career academics should be aware of special emphasis/weightings adopted locally.

'Surgery ...is fundamentally an intellectual discipline, frequently involving a surgical procedure, but most importantly characterized by an attitude of responsibility toward the care of the sick.' Ravitch MM (3)

Leadership in pediatric surgery – clinical surgery

First and foremost, academic pediatric surgical leaders are clinicians. Our work is related to life and death and every decision counts. Excellence in clinical care brings gratitude from patients and their families, and gains respect among our peers and leadership recognition, official or unofficial, follows (4). While most medical curriculum and fellowship programs, including ours in Hong Kong, do not have formal teaching in leadership, pediatric surgeons are unwittingly trained to be leaders. Our specialty is unique in many ways combining the decisiveness and action-orientation of the surgeon with the compassion and thoughtfulness of the pediatrician. We are exposed to a variety of rare diseases every day with challenges which make us realize that it is impossible for us to be experts in all areas and to go alone if we are to be successful in the management of our patients. A multi-disciplinary approach is frequently required for the management of these rare pediatric conditions (5). For example, in the context of congenital diaphragmatic hernia, surgery alone is not sufficient to salvage the baby but the combined effort from neonatologists, anesthetists and occasionally cardio-thoracic surgeons is essential. We know how to repair the defect but we need other colleagues to optimize the baby's physiology for the surgery. Another example is the management of solid tumor. We are trained to perform the tumor resection but oncologists have more knowledge and time to deliver the most effective chemotherapy. Post-operatively, these patients require the care of intensivists for a smooth recovery. In these two examples, surgical treatment remains the cornerstone management and therefore, we are often the one to co-ordinate the management plan. We may not need to know all the minor details but we have to maintain a clear vision of the full picture. Often, we are the one with the strongest bonding with the patients among all team members. We need to acknowledge the

contribution from each party but at the same time understand their limitations so that we can act according to the best interest of our patients. At operation, we have influence on the anesthetists, nurses and supporting staffs: our emotions and actions have a direct impact on the entire operating team. Even under stressful situation, we have to remain calm and continue to lead the operating team to complete the procedure. Our performance and leadership in clinical work is directly reflected by the outcomes of the patients we treat.

Having emphasized some of the positive values of clinical expertise in leadership, it should be recognized these skills represent some but not the qualities for optimal leadership. Development of leadership proficiency needs to be supplemented with training through Executive/Management workshops/courses and learning from relevant professions. An example is crisis leadership lessons from the aviation in how to manage uncertainty, build confidence, share vulnerabilities and set the tone (6).

'Surgical research or comic opera: questions, but few answers.' Commentary. *Lancet* (7)

'In many ways, paediatric surgery represents a frontier in surgery—it is possibly the most challenging subspecialty in which to conduct research, and yet it is pushing the boundaries of biomedical science, seeking innovative, often non-surgical, solutions for intractable problems.'

Editorial. *Lancet* (5)

Academic leadership in pediatric surgery – research and teaching

Research and teaching are the academic pillars underpinning a University's mission, reputation and funding. In university affiliated hospitals, some surgeons are employed by the university and they are named academic surgeons. Academic surgeons are defined by the 'triple threat': excellent clinician, outstanding educator, and impactful researcher (8). Different from service-based clinicians (employed by the public funded Hospital Authority in Hong Kong), academic surgeons have to deliver, on top of the same clinical duties, research and teaching. In many medical schools including ours, these academic activities are weighted equally or even more heavily than the clinical productivity during performance assessment. On the one hand, these additional commitments impose heavy strains on time management and work-life balance. On the other hand, the broad spectrum of activities predispose academic surgeons to an abundance of leadership opportunities. Career advancement criteria vary from community to community but increasingly

rely on measurable indicators and peer assessment. Hong Kong's academic system has evolved from the Commonwealth system but is increasingly influenced by North American practice in its pursuit of international recognition. It is possible to advance in three different professoriate tracks: academic, teaching and practice. The majority of professoriates pursue the conventional academic track which demands excellence in research and competence in teaching and practice whereas professors of teaching and practice are recognized primarily for their outstanding contribution in teaching and professional practice respectively. The latter categories are not 'inferior' or 'escape' positions but remain the minorities because of the difficulties to quantify competitive excellence in teaching and practice.

Research excellence is therefore the core concern for the young academic. Increasingly, at least for Hong Kong and many Commonwealth Universities, the emphasis is on quality and impact rather than quantity. This poses a challenge to clinical academics, and the challenge is perhaps greater for surgeons (9)(i), and more so for those in smaller specialties. Surgical research has been criticized for its low frequency of evidence-based clinical studies exemplified by prospective randomized controlled trials-this deficiency is aggravated in pediatric surgery by the rarity of the diseases we treat. Rather than arguing for greater recognition of the value of case reports and case series in pediatric surgery, we should leverage on pediatric surgeons' collaborative and collegial nature and embark on more multicenter studies ranging from well-designed prospective randomized trials to adopting universal protocols/criteria for long-term outcome assessments.

The unique pathologies in pediatric surgery also present golden opportunities for translating frontier biomedical research to impact clinical practice. Different from pure clinical or laboratory research, translational research requires the collaboration between scientists and clinicians. Novel findings in the laboratory can potentially change clinical practice to improve patient management. (10, 11). A good clinical practice should be supported by high quality scientific evidence. A caring clinician will also identify 'intractable' conditions not satisfactorily managed by current therapies and present interesting challenges for scientists to tackle. The collaboration between surgeons and scientists is becoming more crucial especially in large-scale research funding schemes such as genomics and stem cell study for Hirschsprung's disease in Hong Kong (12), and bowel tissue engineering in London (13). Leadership skills are required for the successful running of these large multidisciplinary research projects/programmes and pediatric surgeon-scientists have shown they are well qualified to co-ordinate such meaningful efforts.

Academic surgeons are exposed to research opportunities throughout their career but they face the challenge of intense competition from basic scientists and researchers in 'hot topics' and 'disruptive technologies'. Young pediatric surgeons will need to nurture the core qualities of 'humility and courage/confidence', and 'perseverance/commitment and innovation' to succeed in academic leadership. Learning basic science in the laboratory requires humility of the clinically accomplished surgeon, but once the bridge is crossed, the surgeon-scientist can be confident of his/her competitiveness in translational research. Acquiring basic research competence and qualification usually requires a period of time-off from clinical duties for full-time research studies: 3-4 years for Doctor of Philosophy (PhD/DPhil) and 2 years for Doctor of Medicine (MD) or its surgery-equivalent Master of Surgery (MS/ChM). It is advisable to undertake this 'sabbatical' early in the academic career but in recent years, clinical pressure has made this increasingly difficult. In our Division, four senior surgeons (Paul Tam ChM, Wei Cheng PhD, Steve Lin DPhil and Ken Wong PhD) had full-time research education whereas the younger academic did so on a part-time basis (Patrick Chung MS). While the surgeon-scientist should adhere to the long-term goal of solving the complex pediatric surgical problems such as childhood tumors and congenital anomalies, the expertise can also be gainfully employed to tackle issues outside the narrow scope of pediatric surgery (see section in beyond pediatric surgery). Having emphasized on research impact, collaboration and mentorship, equally the young academic should be mindful of the need to show some evidence of independence from the seniors/mentors in the Unit to highlight their own potential for academic leadership.

Besides conducting research, teaching and training are other major responsibilities of academic surgeons who are still in active practice. Research postgraduate supervision ranging from MPhil, M Med Res to PhD can count towards both research and teaching. Undergraduate teaching is the 'bread and butter' for academics both because of the fundamental importance of education (*raison d'etre*), and the funding implications at the institutional level. Tenure which provides job security for the professoriate is dependent on recurrent funding. Commonwealth universities receive a large part of their recurrent funding for teaching. Academic pediatric surgeons need to excel in teaching not only to ensure the long-term future of the discipline by attracting young graduates into the profession, but also to sustain and advance their own careers.

Nurturing future generations of surgeons should be the mission of all academic pediatric surgical leaders. Surgical training is undergoing a continuous evolution.

The traditional 'one-to-one' apprenticeship has been replaced by the more structured organization-based training system. Nowadays, a trainee is usually supervised by multiple trainers who in turn mentor several trainees. Nevertheless, the mentor-mentee relationship still exists and mentors are leaders in the training program. Instead of giving out instructions, a good trainer (leader) should encourage the trainees to maximize their potential and develop their own interests. In addition to an all-round surgical training programme, future leaders need to equip themselves with new skills relevant to their career goals. Subspecialty development may need training beyond regular general pediatric surgery settings, for example, an aspiring pediatric hepatobiliary surgeon (the younger author) benefits from a fellowship attachment to a busy adult hepatobiliary and liver transplant unit. The supervision and training of next generation surgeons are of paramount importance for the continued development of our specialty. The senior author takes great pride and pleasure in first establishing a 'train-the-trainers' program, followed by a series of 'Laparoscopic training workshops' in China (14). Over 2,500 Chinese surgeons received laparoscopic training and China has emerged as a major force in pediatric minimal invasive surgery (15). With the help of international experts, we also developed a series of 'Scientific Writing Courses' attended by some 500 young surgeons collectively. From relatively low numbers of publications in English literature in early years, China now ranks only behind the United States in the number of manuscripts submitted to Journal of Pediatric Surgery (data from Elsevier). High-impact publications have also emerged from pediatric surgical centres in Hong Kong and China (16-18).



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Esteem

The esteem factor is not easily quantifiable but is often used as a measure of peer recognition in academic career advancement. Performance indicators include honors/awards/prizes, invited/keynote lectures, editorships and leadership in professional/academic societies, etc and their importance are graded according to local, regional and international positions/events. The opportunity to take up leadership role in professional organizations signifies peer recognition. It is a prestigious career achievement if the serving organization is a renowned one. Furthermore, taking up leadership role creates an avenue to develop professional network.

Esteem achievements can be challenging for the young academics as leadership appointments are often conferred on senior academics. Reputation has to be

'groomed'. The young academic should work towards leadership positions through early involvement in international congresses and professional organizations to impress their peers with enthusiasm, intelligence and energy. The importance of international networking cannot be over-emphasized. Visiting institutions renowned in one's special interest will be a good start for the young academic. At international congresses, apart from presentations of original works, active participation in discussion is encouraged. To get invited to editorial membership, other than the essential qualification of excellent research outputs, a track record of providing good and timely reviews of manuscripts is a necessity. Leadership roles in professional organizations also start with committee membership and 'work-intensive' positions as secretaries/treasurers. Younger surgeons who are tech-savvy can lead in the modernization of paediatric surgery, for example, with the use of social media to establish more effective global network for knowledge sharing (Stay Current and TikTok apps by Todd Ponsky, We Chat group for Chinese pediatric surgeons). Senior academics should both lead by example and provide opportunities for the juniors and proactively plan for succession.

Excellence in clinic, research, teaching and administration: balance and prioritization

While some leaders may be recognized for being well-rounded, it may take a super-human to excel equally in clinic, research, teaching and administration. More often, universities will promote an academic who is good/competent in most of these areas but is internationally recognized as outstanding in a focused field of scholarship. There can be no single formula for success (19). Prioritizing and focusing in one or two aspects of academic endeavours could be the most difficult and critical decision for a young academic. Career planning is important, but one has to accept that opportunities may not always be foreseen. As Louis Pasteur famously stated 'Fortune favors the prepared mind', single-mindedness in research, teaching or administration has to be balanced with flexibility and preparedness to accept new challenges. As an example, the senior author decided in early years to focus on achieving a basic understanding of one congenital anomaly, Hirschsprung's disease, and advanced the field subsequently by taking advantage of new frontier technologies in genomics and regenerative medicine. Concurrently, efforts in developing minimal invasive surgery would bring more immediate gratification in patient outcome and surgical training.

Academic leadership beyond paediatric surgery

Paediatric Surgery provides a fertile background for leadership beyond the narrow confines of the narrow discipline. In teaching development, we have to embrace new

learning trends. For example, the younger author is at the forefront of reforms of curriculum and pedagogy. Examples include our recent entry into Massive Open Online Course, and initiatives to adapt to COVID-19 restrictions on bedside teaching with web-based tutorials, and E-magazine: the Paediatric Surgery Lounge (20, 21). In research, while the primary goal is to solve pediatric surgical problems, the experience and approach may have wider applications. The best clinical example is Dr Michael Gauderer's percutaneous endoscopic gastrostomy (22) developed initially for children but now widely practiced for adult patients. The best research example is Dr Judah Folkman's ground-breaking discoveries in angiogenesis (23). The integrated multidisciplinary approach for rare surgical anomalies also serves as exciting model for studies of other more common diseases. Even for the ongoing COVID-19 (Coronavirus Disease 2019) pandemic, pediatric surgeons have contributed to the understanding of disease differences between children and adults (24) and provided valuable research models such as lung and gut organoids (25, 26)

Some pediatric surgical giants have become leaders beyond our discipline. Dr C. Everett Koop was Surgeon General of the United States 1982 to 1989 and became a household name known for his work on tobacco use, AIDS, and rights of children with disabilities. Dr Jay Grosfeld was Chairman of the American Board of Surgery, President of the American Surgical Association. In Asia, pediatric surgeons have been appointed to Hospital Directorships and Medical School Deanships. The senior author held positions of Acting President/ Provost/Vice-President of the University concurrently with the Chair of Paediatric Surgery. The list is far from complete but simply serves to show there is no single path to leaderships.



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Conclusion

There are many opportunities for academic leadership in and beyond pediatric surgery. We, pediatric surgeons, are more than clinicians with operative skills. Although we may not be born-leaders, our working environment has prepared us to be future leaders. In clinical practice, good leadership skills are essential for patient management

Leadership occurs in many levels and leaders are not confined to senior persons. Anyone who is willing to commit him- or her-self to the team can become the leader. Young surgeons should be given the chance and encouraged to take up leadership post. While experience would enhance leadership, a good communication skill is the most essential character that leaders should possess. Soft power, the ability to

attract and co-opt, is more important than hard power (coercion) in leadership, and pediatric surgeons are well-endowed with these positive attributes. Hopefully, far from being frustrated/intimidated by the challenges for a small specialty, young pediatric surgical talents will be encouraged to continue the fine tradition of academic distinction of our discipline.

Table 1 Core leadership qualities (not exclusive)

1. *Personal traits*

- a) Integrity/trust/humility
- b) Vision
- c) Passion/commitment/courage/confidence
- d) Communication
- e) Decision making
- f) Professional competence
- g) Innovation & Learning

2. *Performance*

- a) Accountability
- b) Delivery and ownership
- c) Effort to deliver results
- d) Talent management
- e) Risk management

3. *Collaboration/team building*

- a) Centredness
- b) Influencing team members
- c) Collaboration direction
- d) Shared objectives
- e) Collective thinking
- e) Effective execution
- f) Mastering conflicts
- g) Belonging
- h) External orientation/networking/negotiating

References

1. Beasley SW. Understanding the responsibilities and obligations of the modern paediatric surgeon. *J Pediatr Surg*. 2015;50(2):223-31.
2. Thompson-Burdine JA, Telem DA, Waljee JF, Newman EA, Coleman DM, Stoll HI, et al. Defining Barriers and Facilitators to Advancement for Women in Academic Surgery. *JAMA Netw Open*. 2019;2(8):e1910228.
3. Krummel TM. What is surgery? *Semin Pediatr Surg*. 2006;15(4):237-41.
4. Rosengart TK, Mason MC, LeMaire SA, Brandt ML, Coselli JS, Curley SA, et al. The seven attributes of the academic surgeon: Critical aspects of the archetype and contributions to the surgical community. *Am J Surg*. 2017;214(2):165-79.
5. The L. Pushing the boundaries in paediatric surgery. *Lancet*. 2017;390(10099):1006.
6. Gogalniceanu P, Kessar N, Karydis N, Calder F, Mamode N. Responding to Unexpected Crises - The Role of Surgical Leadership. *Ann Surg*. 2020;272(6):937-8.
7. Horton R. Surgical research or comic opera: questions, but few answers. *Lancet*. 1996;347(9007):984-5.
8. Stone MJ. The wisdom of Sir William Osler. *Am J Cardiol*. 1995;75(4):269-76.
9. Keswani SG, Moles CM, Morowitz M, Zeh H, Kuo JS, Levine MH, et al. The Future of Basic Science in Academic Surgery: Identifying Barriers to Success for Surgeon-scientists. *Ann Surg*. 2017;265(6):1053-9.
10. Tang CS, Li P, Lai FP, Fu AX, Lau ST, So MT, et al. Identification of Genes Associated With Hirschsprung Disease, Based on Whole-Genome Sequence Analysis, and Potential Effects on Enteric Nervous System Development. *Gastroenterology*. 2018;155(6):1908-22 e5.
11. Chua GT, Xiong X, Choi EH, Han MS, Chang SH, Jin BL, et al. COVID-19 in children across three Asian cosmopolitan regions. *Emerg Microbes Infect*. 2020;9(1):2588-96.
12. Lai FP, Lau ST, Wong JK, Gui H, Wang RX, Zhou T, et al. Correction of Hirschsprung-Associated Mutations in Human Induced Pluripotent Stem Cells Via Clustered Regularly Interspaced Short Palindromic Repeats/Cas9, Restores Neural Crest Cell Function. *Gastroenterology*. 2017;153(1):139-53 e8.
13. Clevers H, Conder RK, Li VSW, Lutolf MP, Vallier L, Chan S, et al. Tissue-Engineering the Intestine: The Trials before the Trials. *Cell Stem Cell*. 2019;24(6):855-9.

14. Tam PK, Wong KK, Li L, Zhang JZ. Internationalization: the Hong Kong-China experience as a model for collaborative education in Asia. *Pediatr Surg Int*. 2013;29(10):1053-9.
15. Diao M, Cheng W, Tam PKH, Li L. Development of pediatric minimally invasive surgery in mainland China. *J Pediatr Surg*. 2019;54(2):229-33.
16. Babu RO, Lui VCH, Chen Y, Yiu RSW, Ye Y, Niu B, et al. Beta-amyloid deposition around hepatic bile ducts is a novel pathobiological and diagnostic feature of biliary atresia. *J Hepatol*. 2020;73(6):1391-403.
17. Dong R, Yang R, Zhan Y, Lai HD, Ye CJ, Yao XY, et al. Single-Cell Characterization of Malignant Phenotypes and Developmental Trajectories of Adrenal Neuroblastoma. *Cancer Cell*. 2020;38(5):716-33 e6.
18. Wang J, Xu Y, Chen Z, Liang J, Lin Z, Liang H, et al. Liver Immune Profiling Reveals Pathogenesis and Therapeutics for Biliary Atresia. *Cell*. 2020.
19. Tanious A, McMullin H, Jokisch C, Edwards JB, Boitano LT, Conrad MF, et al. Defining a Leader-Characteristics That Distinguish a Chair of Surgery. *J Surg Res*. 2019;242:332-5.
20. Available from: <http://hku.to/surgeon>, <http://www.surgery.hku.hk/en/E-Learning/Paediatric-Surgery-Lounge>
21. Tsang ACO, Lee PP, Chen JY, Leung GKK. From bedside to bedside: A neurological clinical teaching experience. *Med Educ*. 2020;54(7):660.
22. Gauderer MW PJ, Izant RJ., Jr Gastrostomy without laparotomy: a percutaneous endoscopic technique. *J Pediatr Surg*. 1980(15):872-5.
23. Folkman J. Is angiogenesis an organizing principle in biology and medicine? *J Pediatr Surg*. 2007;42(1):1-11.
24. Xiong X CG, Chi S, Wah Kwan MY, Sang Wong WH, Zhou A, Shek CC, Tung KT, Qin H, Wong RS, Li X, Chen P, Li S, Chui CS, Tso WWY, Ho MHK, Wong ICK, Chan GCF, Lau YL, Wong KKY, Chung PHY, Li H, Tam PKH, Tang ST, Ip P A Comparison Between Chinese Children Infected with COVID-19 and with SARS. *J Pediatr*. 2020;224:30-6.
25. Zhou J, Li C, Sachs N, Chiu MC, Wong BH, Chu H, et al. Differentiated human airway organoids to assess infectivity of emerging influenza virus. *Proc Natl Acad Sci U S A*. 2018;115(26):6822-7.
26. Zhou J, Li C, Liu X, Chiu MC, Zhao X, Wang D, et al. Infection of bat and human intestinal organoids by SARS-CoV-2. *Nat Med*. 2020;26(7):1077-83.