

Shortening Training Duration to Address the Insufficiency of Ophthalmologists: A Deeper Look at the China Experience

Roland Joseph D. Tan, MD, MS, MIH^{1,2,3,4}

¹Department of Ophthalmology and Visual Sciences, College of Medicine and Philippine General Hospital, University of the Philippines Manila

²National Teacher Training Center for the Health Professions, University of the Philippines Manila

³Department of Ophthalmology, Baguio General Hospital and Medical Center

⁴Southern Isabela Medical Center, Santiago, Isabela

ABSTRACT

The availability of ophthalmologists is vital to making eyecare accessible to everyone. Medical education and ophthalmology residency training in China was reduced to address the high demand for ophthalmologists. This is something the Philippines can consider to increase the number of ophthalmologists in the country. However, decreasing the duration, together with insufficient monitoring of medical education and ophthalmology residency training, were not without consequences in eyecare in China.

Keywords: Ophthalmology Residency Training, Medical Education, China, Philippines, decreased duration

INTRODUCTION

In July 2021, the United Nations (UN) General Assembly unanimously adopted a “Vision for Everyone – Accelerating Action to Achieve the Sustainable Development Goals.” This move made eye health integral to achieving the UN Sustainable Development Goals.¹ The resolution aims to assure the population of the UN members full access to eye care. In line with this resolution, the International Agency for the Prevention of Blindness (IAPB), which worked with the World Health Organization (WHO) in the past two decades on the implementation of the global initiative “VISION 2020”, launched “2030 In Sight”. Included in the goals of “2030 In Sight” is the integration of eye care within broader health care, a key element recognized in the WHO World Report on Vision and the Lancet Global Health Commission on Global Eye Health.² Vital to the success of both the resolution and the program is the availability of eye care personnel, including ophthalmologists.

In 2010, the International Council of Ophthalmology (ICO) conducted a global survey involving 213 ophthalmologic societies to determine the number of ophthalmologists in practice and training.³ The survey result showed that despite having more than 200,000 ophthalmologists in 193 countries, there remained a gap between the global population reaching 60 years old and the rate of getting trained. China had the most number of ophthalmologists globally at 28,338, with 20 ophthalmologists per million population, higher than the Philippines’ 14.⁴ Although these numbers were within



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Corresponding author: Roland Joseph D. Tan, MD, MS, MIH
Department of Ophthalmology and Visual Sciences
College of Medicine and Philippine General Hospital
University of the Philippines Manila
Taft Avenue, Ermita, Manila 1000, Philippines
Email: rdtan@up.edu.ph
ORCID: <https://orcid.org/0000-0001-9474-1368>

the 4-25 ophthalmologists per million population range and were better than 53 (28%) other countries with ≤ 3 ophthalmologists per million population range, they were below 92 (48%) countries with >25 ophthalmologists per million population. Similarly, there was a future shortage of ophthalmologists anticipated in all countries. Aggressive training to address the shortage was recommended.⁴

China's medical education system ascribes to the United Kingdom's (UK) bachelor in medicine and bachelor of surgery degree (MBBS) system and, in 2013, adopted a 5-year ophthalmology residency training. However, China's ophthalmology residency training system is different from UK's in that, in UK, it takes around 15 years from high school graduation (6 years MBBS, 2 years Foundation Program, and 7 years ophthalmology training) to become a consultant ophthalmologist.⁵

China's system was to meet the high demand for ophthalmologists as a result of China's fast-growing population by shortening the number of years of training even before the UN resolution.⁶ In China, one can be an ophthalmologist after around 7-10 years from high school graduation: 3-5 years MBBS plus 3-5 years of ophthalmology training and a year for National Medical Licensing Examination (NMLE). The non-requirement of a prior college degree, like in the Philippines, significantly cuts 4 years from medical education.⁷ Furthermore, unlike the UK's 6-year MBBS system, China's standard MBBS only takes 5 years. Some even offer a shorter 3-year vocational medical program.⁸

Ophthalmology residency training can run from 3-5 years.⁹ In 1998, passing the NMLE, a 2-part of clinical and written test, was made a requirement to practice independently in China.¹⁰ NLME is taken after residency training.⁹ In the Philippines, it takes around 12-13 years to become an ophthalmologist from high school graduation: 4 years of college, four years of medical degree (MD), 1-year internship, and 3-4 years of general ophthalmology residency training. Although there are accelerated programs that shorten medical school by two years, such as the Integrated Liberal Arts and Medicine (INTARMED) program of the University of the Philippines and two more programs offered by the University of Santo Tomas and De La Salle University, the slots allotted for students are few compared to the standard medicine program and not all train to become ophthalmologists. As such, will shortening medical education and ophthalmology residency training duration similar to China help the Philippines make the supply of ophthalmologists sufficient and lead to better eye care in the country?

China's system is not without consequences. The medical curriculum and admission requirements were deemed insufficient to train "leading" or world-renowned physicians.⁶ The multi-tiered medical curriculum produced a heterogenous group of physicians, which created inequity in patients' access to "good" or competent physicians since those with higher education often get hired in urban areas.⁸ It is also unclear if all MBBS students get necessary supervised hands-on

clinical exposure similar to their counterparts in the UK since standardization is difficult to implement.¹¹ Monitoring standards for medical education are also not centralized and not strict, unlike in the UK, where its Academy of Medical Royal Colleges monitors medical schools' compliance and gives sanctions when needed.^{6,12}

The same concerns were shared in the ophthalmology residency training (and other residency training programs). Chinese ophthalmology residency training programs employed different tracks despite the introduction of a 5-year standardized residency training program in Ophthalmology in 2013 to improve residents' competency and for them to be at par with international standards.^{6,7,9} For those pursuing an additional graduate degree during residency training, the residency component must be no less than 33 months.⁹ Although five years are allotted for the standardized residency training program, there appears to be insufficient time appropriated for clinical and surgical training in the setting of increasing pressure to publish.^{6,13} Ophthalmology is primarily a surgical specialty, and the number of supervised surgeries performed matters to a surgeon's surgical competency.¹⁴ To do essential surgeries such as cataract extraction and enucleation only in the last year of training can negatively affect the development of a resident's surgical skill.⁶

This may explain the low number of ophthalmologists, with only 36% of the 28,000 Chinese ophthalmologists who perform cataract surgery, which is a basic surgical competency of an ophthalmologist.¹⁵ This may also explain the poor surgical outcomes and the low satisfaction rate of residents due to limited supervised surgeries.^{15,16} Considering that a large portion of global blindness due to cataracts comes from China, it is disconcerting that its cataract surgery coverage (CSC) was lower than India's and Brazil's.^{15,16} Cataract is the leading cause of avoidable blindness globally, and increasing the countries' cataract surgery indicators was Vision 2020's action plan to address this. Another concern is the poor visual outcomes, or a presenting vision worse than 6/18, of patients who underwent cataract surgeries or the effective cataract surgical coverage (eCSC).¹⁶⁻¹⁸

Despite the lower number of ophthalmologists per million population of the Philippines compared to China, we have higher cataract surgical CSC (~46% vs. 34.5%) and eCSC (~37% vs. 20.2%) in 2006.^{17,18} How then can the situation be improved in China? Numerous reforms have been recommended by both Chinese and international medical and ophthalmological educators.^{7,11,15} Central to the reforms needed is the creation of centralized bodies that will set standards for, accredit based on those standards, closely monitor adherence, and penalize medical schools and training institutions for non-compliance.¹⁵ In the Philippines, medical schools are regulated by Commission on Higher Education, while most residency programs are accredited and monitored by the Philippine Board of Ophthalmology.

To facilitate accreditation and monitoring, the training track to become an ophthalmologist may have to be reduced.

In the Philippines, there is only one track. Although straight programs such as the 8-year mode (5-year MBBS + 3-year ophthalmology residency training) shorten the total training time needed, it should not be the primary training option.⁶ Straight programs require significant commitment, which may be too much for a high school graduate to make.¹¹ This can lead to high drop-out rates during the study and waste allotted student slots. Straight programs also present the challenge of students not having knowledge and exposure to non-medical disciplines. Considering that ophthalmology is a fast-developing specialty, especially in technology, now more than ever, ophthalmologists need to be familiar with information technology, artificial intelligence, and machine learning as well.¹¹

In further efforts to address training quality concerns, Peking Union Medical College adopted the 4+4 program (US system) 2018.¹¹ This track will prolong the total years needed for ophthalmology residency training to around 11 years (if graduates take only the 3-year residency program). If nationally adopted, this can negatively impact the supplies of local ophthalmologists. However, this may help increase the competency of all future ophthalmologists in China. Besides, 11 years is only a year longer than China's standard program of 10 years. However, Hu and Du cautioned on the cost of introducing the US system to China compared to just improving the existing MBBS system, which they cited provided high standards of medical education in Europe and Australia.^{19,20} They did not mention though that the countries that successfully used the MBBS (e.g., UK) add foundation courses prior to and require long years for ophthalmology training which may explain China's differing experience with MBBS.

Numerous reforms have also been implemented by the Chinese Ministry of Health, which handles the accreditation of all residency programs, to address these concerns.⁸ The process is proving to be complicated. The results are slow since projections of practicing physicians who will have at least a bachelor's degree remain low at 54% in 2035.⁸ Considering all the challenges in the medical education system and ophthalmology residency training programs, the Philippines can continue with its current systems as they are better regulated and monitored despite the longer duration.

In 2015, in a repeat survey to determine the number of ophthalmologists globally, there was positive growth in most countries, including China and the Philippines.²¹ China also reported an increase of 81% in CSC and 110% in eCSC in 2014.¹⁷ There was no new data from the Philippines. With the increasing trend in the number of ophthalmologists globally, another significant threat to accessibility to ophthalmologists needs global attention - their geographical maldistribution, especially in the urban areas.²¹ Despite the increase in availability in the number of ophthalmologists, maldistribution can threaten the success of the World Health Assembly resolution and the "2030 In Sight" global initiative to end avoidable blindness.

Statement of Authorship

The author contributed in the conceptualization of work, acquisition and analysis of data, drafting and revising, and approved the final version submitted.

Author Disclosure

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