

Re-Designing Direct-Entry Ophthalmic Education: Bachelor of Ophthalmic Medicine & Surgery (BOMS)

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The ophthalmic care vacuum and provision of ophthalmic services in the third world and especially in Pakistan has come to a crossroads. According to the International Council of Ophthalmology, there are 1,860 Ophthalmologists in Pakistan with work ratio of 11 ophthalmologists per million.¹ Nadir et al, surveyed 420 Pakistani medical students and found that 33.3% planned to leave Pakistan after graduation.² Meo & Sultan also documented the migration of 31,418 doctors from Pakistan between 1971 and 2022.³ These studies suggest a significant “brain drain” of medical graduates who emigrate shortly after earning their degrees. Besides, 70% of ophthalmologists reside in urban areas, while 70% of the population lives in rural areas.¹

The clinical ophthalmic delivery services show huge structural gap. Urban areas have a remarkably high doctor density, whereas large rural districts have no functional access to basic ophthalmic services. As a result, the waiting period for a standard cataract operation within the public health service is commonly measured in months. Closing this growing divide requires paradigm shift, the way we educate ophthalmologists. In a survey of medical students of a renowned institute of Pakistan, 8.65% students selected Ophthalmology as their first choice, which is at 4th rank in all specialties after internal medicine, cardiology and pediatrics.⁴ Al Salman SA et al, identified that 10.2% medical students opt Ophthalmology as their first choice for career.⁵ In another study, Ophthalmology was on second (14.4%) preferred choice of medical student after dermatology.⁶ This shows a rigorous quest for Ophthalmology among young medical graduates. To cater this growing surge and introducing an innovative leap in medical education, we advocate the creation of

the Bachelor of Ophthalmic Medicine & Surgery (BOMS), a 4-year course leading to a direct-entry basic medical undergraduate degree.

Historically, about a century ago, healthcare authorities acknowledged the anatomical and surgical distinctiveness of oral cavities (Dentistry), necessitating a separate training stream for dental professionals and executed successfully. In the Bachelor of Dental Surgery (BDS) and Doctor of Dental Surgery (DDS) routes, the general clinical rotations are skipped, and the specific clinical and surgical skills are taught from the first day. Keeping this precedent in view, “Dentistry of the Eye” would be a paradigm shift to redesign ophthalmic education. Implementing the same type of structural reasoning to the visual domain constitutes the foundation of the BOMS model. Through exclusion of non-specific topics (like orthopedic, Gynecology, etc.), students can learn the exacting details of micro-anatomy, optics, visual pharmacology and clinical refraction from the very beginning of their studies.

Traditionally, it takes approximately 12 hard years of schooling to be a fully registered ophthalmologist. This long period is unfortunately lengthened by the current system which forces prospective students to spend time working in unrelated clinical specialties such as obstetrics, gynecology, or orthopedics before beginning their specialized training in ophthalmic surgery. Changing the education system to a straight entry degree would shorten the training period considerably and make the specialization much deeper.

The suggested 4-Year BOMS Curriculum /syllabus integrates the core systemic medical understanding with accelerated and concentrated early specialization within three specified stages:

Phase I: Basic Medical Core Knowledge:(Years 1 & 2)

- Focus: Setting a basic medical reference point and recognizing the integral relationship between vision and overall health.

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Table 1: Comparison of Training Timelines Across Healthcare Professions.

Training Milestone	Traditional (MBBS)	Proposed BOMS	Dentistry(BDS)	Optometry (BSc)
Undergraduate Degree	5 Years	4 Years	4 Years	4 Years (BSc)
House Job	1 Year	1 Year	1 Year	
Specialization / FCPS	4 Years	2 Years	4 Years	4 Years (MSc)
Subspecialty Fellowship	2 Years	2 Years	2 Years	
Total Years to Practice	12 Years	9 Years	11 Years	8 Years

- Modules: Physiology, endocrinology, special senses, ocular anatomy, neuroanatomy, ocular embryology, general & ocular pharmacology, general & ocular pathology, optics and sterilization protocols.

Phase II: Diagnostic, Clinical &Surgical Care: (Years 3 & 4)

- Focus: Advanced diagnostics, Laser &therapeutic intervention and surgical skills.
- Modules: Bio-microscopy (slit-lamp investigation),ocular conditions (Diagnosis and management), visual sciences (Clinical refraction), advanced retinal diagnostics, laser treatments and the management of concurrent systemic diseases, supervised ocular surgical training.

Phase III: Surgical Immersion: Internship/House Job: (one year)

- Focus: Purely hands-on, micro-surgical training and public health integration.
- Modules: Ophthalmic microsurgical skills, management of ocular diseases and emergencies, and community ophthalmic services.
- Logbook Target:100+ independent cataract and extra-ocular surgeries.

Naturally, however, the organized inertia of the traditional medical profession will be encountered for such a daring innovative effort. Nonetheless, our rebuttals are founded in medical tradition and pedagogical effectiveness:

Objection: The eye cannot be separated from systemic health.

Counterargument: Nor can the oral cavity. However, dentistry has been functioning perfectly well as a stand-alone, direct-entry course for over a hundred years with specialized intensive systemic medicine education embedded in its own program.

Objection: Graduates will not possess the required surgical maturity.

Counterargument: Excluding fields not pertinent to

ophthalmology (such as dermatology or gynecology), students of the BOMS program will undergo three times the specialized and practical microsurgical ophthalmic training in their early university education than graduates of traditional programs.

Objection: Existing medical licensing laws do not permit it.

Counterargument: Legal systems are dynamic. Amendment of licensing acts in consult with both national and international accreditation bodies to recognize the BOMS tier will eventually reduce the financial and operational strain on overburdened general health systems.

A strategic advocacy roadmap for converting the BOMS model from a theoretical construct into a globally embraced fact requires a well-organized lobbying policy to be implemented on three simultaneous fronts:

1. Building Regulatory and Institutional Coalitions

- Local Action: Consult the Higher Education Commission (HEC), Pakistan Medical & Dental Council (PMDC) and the College of Physicians and Surgeons Pakistan (CPSP) to develop the regulatory charter.
- International Alignment: Collaborate with international organizations such as the ICO (International Council of Ophthalmology), AAO (American Academy of Ophthalmology) and the RCOphth (Royal College of Ophthalmologists).
- Global Health Frameworks: Work with the World Health Organization (WHO) to position the BOMS degree as a scalable solution to eradicate preventable blindness, aligning directly with global initiatives such as Vision 2030 or SPECS which actively advocates for building the capacity of specialized personals.
- Interdisciplinary Collaboration: Partner with the World Council of Optometry (WCO) to establish BOMS as the premium academic conduit that links together the 4-year professional optometric

education to the 12-year traditional ophthalmologic path.

2. Publishing Economic & Educational Models

- According to WHO, 90% of world's visually impaired population resides in developing countries and most of these cases are treatable and preventable. Publishing a cost saving model to train an eye doctor over the period of 8–9 years versus 12–14 years, will easily be understood by policy makers.
- Write extensive concept papers that contain a precise protocol of exact steps of procedures and statistical evidence that the model works.

3. Pilot Programs and International Standardization

- Conduct an introductory pilot degree program at reputable Ophthalmic institute such as in the UK where specific maxillofacial programs are in use.
- Assemble an international think tank, “**The Global Alliance for Direct-Entry Ophthalmic Education**,” which will work with the World Federation of Medical Education (WFME), so that the graduates with BOMS are legally allowed to practice in other countries.

The worldwide epidemic of sight loss requires a new way of thinking. The usual protracted general route to the practice of ophthalmology will simply increase the backlog of visually impaired population and cannot curtail the existing long and increasing queues of patients in underdeveloped countries. If Pakistan takes the initiative to establish the Bachelor of Ophthalmic Medicine & Surgery, (a direct-entry undergraduate Ophthalmic degree), a much more rapid world-wide educational revolution in providing a competent generation of eye care providers would follow. These eye specialists would be motivated by

no other purpose from the outset than seeing and treating sight.

Key words: Ophthalmology, Education, Undergraduate, Curriculum, Bachelor Of Ophthalmic Medicine & Surgery (BOMS), Direct-Entry Ophthalmic Education.

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