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Analysis of Policy and Politics in Education on Phacoemulsification Training for Newly Graduated Ophthalmologists

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ABSTRACT

The increasing burden of cataract-induced blindness in Indonesia demands competent surgical responses, particularly through the phacoemulsification technique—a minimally invasive surgical procedure globally recognized as the gold standard. However, structural limitations in training policies, unequal access to resources, and political dynamics impede the readiness of new ophthalmologists in mastering this technique. This study explores the systemic, policy, and political contexts underlying phacoemulsification training in Indonesia. Using a qualitative descriptive approach supplemented by a literature review, this research analyzes dimensions of curriculum development, accreditation standards, infrastructure distribution, stakeholder politics, and professional ethics compliance. Findings indicate that to ensure equitable surgical competence among graduates of ophthalmology specialist programs, policymakers need to integrate national regulations with international standards, decentralize access to quality training, and enforce ethical governance across all medical education institutions.

Keywords: education policy, phacoemulsification training, political analysis

INTRODUCTION

Cataract remains the leading cause of preventable blindness in Indonesia and various low- to middle-income countries (Bourne et al., 2017; WHO, 2013). The recommended surgical intervention, phacoemulsification, offers faster recovery times, lower complication risks, and superior visual outcomes compared to conventional extracapsular cataract extraction methods (Chang et al., 2020; AAO, 2022). However, to effectively implement this technique, ophthalmologists require advanced training in microincisional surgery techniques, intraocular lens implantation, and the use of ultrasonic surgical devices (Greenberg et al., 2016).

Despite its proven clinical superiority, equitable access to phacoemulsification training in Indonesia remains a fundamental issue. Disparities in equipment availability, institutional readiness, curriculum uniformity, and funding allocation result in inconsistent surgical skill achievements among ophthalmology residents. Additionally, political interests, private sector sponsorship, and regulatory fragmentation further complicate the delivery of standardized training programs (Nasution et al., 2024; Bardiah, 2012). This study examines educational policies, institutional structures, and political considerations affecting the implementation of phacoemulsification training for new ophthalmologists in Indonesia. Referencing policy theory and global educational standards, this review offers a roadmap for reforming surgical education to align with national needs and international expectations.

This research employs a qualitative descriptive approach combined with a literature review design. The qualitative approach allows researchers to synthesize non-numeric data, such as educational policies, institutional dynamics, and stakeholder perceptions. The literature review encompasses a comprehensive examination of published academic literature, policy documents, international training guidelines, and regulatory frameworks relevant to ophthalmology and health education. Data sources were selectively chosen from curated reference lists, including documents from international organizations (WHO, ICO, AAO), Indonesian government regulations, and highly relevant national academic publications. The reviewed literature forms the basis for analyzing six main dimensions: training curriculum, stakeholder roles, infrastructure equality, accreditation and regulation, ethical considerations, and international comparisons.

METHOD

This study uses a qualitative descriptive approach supplemented by a literature review method. The qualitative approach enables synthesizing non-numeric data, such as educational policies, institutional behaviors, and stakeholder perspectives within the context of specialist medical training. The literature review involved an in-depth examination of published academic literature, policy

documents, international training guidelines, and regulatory frameworks relevant to ophthalmology and health education.

Data sources were selectively chosen from a curated list of references, including official documents from international organizations such as the WHO, ICO, and AAO, Indonesian government regulations, and highly relevant national academic publications. The systematically reviewed literature forms the basis for analyzing six main dimensions: training curriculum, stakeholder roles, infrastructure equality, accreditation and regulation, ethical considerations, and international standard comparisons.

RESULTS AND DISCUSSION

Curriculum Design and Competency-Based Framework

Developing a standardized curriculum for phacoemulsification training is the primary foundation to ensure competency among new ophthalmology specialists. In Indonesia, the shift from content-based approaches to competency-based frameworks reflects broader reforms in medical education aimed at aligning learning with patient-centered service outcomes. However, this transition remains uneven. The national standards formulated by PERDAMI (2020, 2024) recommend a structured training sequence, starting from theoretical mastery, clinical simulation, to supervised surgical exposure. However, implementing these standards in practice faces significant challenges. For example, central institutions in cities like Jakarta and Yogyakarta have advantages in funding, access to subspecialist lecturers, and simulation laboratories, while regional institutions often do not even meet basic curriculum requirements (Kartasasmita et al., 2024; Gunawan et al., 2019).

International comparisons indicate that the ICO Residency Curriculum (2021) mandates that trainees achieve proficiency in surgical planning, intraocular lens calculation, phacoemulsification machine operation, and postoperative care. Additionally, the AAO (2023) stipulates specific surgical quotas that must be fulfilled by the end of residency. In Indonesia, however, these quotas are rarely enforced consistently. Some reports mention residents graduating after completing fewer than 20 supervised surgeries, far below the international threshold of 50–80 cases (AAO, 2022; Pooja & Rao, 2014).

Stakeholder Dynamics and Political Interests

Interactions among actors in the delivery of phacoemulsification training—including ministries, professional associations, medical faculties, and the private sector—create a complex policy landscape often lacking solid consensus. Health education policies, especially at the specialization level, are shaped not only by clinical priorities but also by political, financial, and ideological considerations (Collins, 2005; Gani, 2012). One main issue is the fragmentation of policy authority. The Ministry of Health sets public service priorities and budget allocations, while the Ministry of Education has

authority over curriculum content and higher education accreditation. Meanwhile, PERDAMI serves as the professional standard setter but lacks the legal capacity to enforce its standards. This misalignment often leads to "siloed policies," where training objectives do not align with actual healthcare service needs (Nasution et al., 2024).

This issue is exacerbated by the involvement of medical device companies. Major firms like Alcon and Johnson & Johnson Vision routinely sponsor wet lab training, equipment grants, and even curriculum content. While such collaborations help address equipment shortages, they pose a risk of curriculum bias toward sponsor technologies. Dhomiri et al. (2023) critique this model as ethically questionable due to potential covert marketing influences in educational content. Additionally, competition among universities to gain prestige and funding contributes to disparities in training quality. Urban universities tend to have more experienced teaching staff and higher patient volumes, while institutions in remote or newly established areas face limitations in clinical exposure and surgical cases. Consequently, graduates from resource-limited institutions exhibit deficits in skills and knowledge, widening the healthcare service gap between regions (Bardiah, 2012).

The proposed solution is to establish a coordinated stakeholder governance mechanism. A centralized steering committee involving representatives from ministries, PERDAMI, medical faculty deans, and patient advocacy groups can streamline decision-making and minimize policy redundancies. Such a model has proven effective in countries like Malaysia and Thailand, where national medical education boards coordinate vertical integration between policy, curriculum, and field practice. Ultimately, depoliticizing surgical education and shielding it from corporate and bureaucratic dominance is essential to keep patient safety and clinical competence as the primary focus.

Infrastructure Gaps and Geographic Disparities

One of the most prominent barriers to equitable phacoemulsification training in Indonesia is the disparity in infrastructure between urban and rural areas. While leading institutions in major cities are equipped with state-of-the-art phacoemulsification machines, simulation labs, and high surgical volumes, many regional hospitals still lack basic surgical microscopes and supervising ophthalmologists (Gunawan et al., 2019). These disparities create vastly different learning experiences among residents. Trainees in Java can complete over 70 procedures before graduation, whereas those in regions like Maluku or Papua rely primarily on theoretical lectures and incidental video demonstrations. As a result, complication rates are higher, graduate confidence is lower, and postoperative visual outcomes are poorer in underserved regions (Putri et al., 2022).

In response, some countries have developed 'hub-and-spoke' surgical education models, where a central 'hub' hospital with high training capacity connects to peripheral 'spoke' clinics to share resources, provide remote supervision, and arrange clinical rotations. India's NIHR model (2021) demonstrates that this approach can expand access and improve training equity. Indonesia could adopt a similar model by designating core institutions on each major island as regional training hubs. Additionally, optimizing digital infrastructure is crucial. Tele-ophthalmology platforms offering real-time supervision and asynchronous case reviews can provide additional learning opportunities for

residents in low-volume centers. Although challenges like internet connectivity and data security persist, initial trials in Sumatra and Sulawesi show promising potential.

Ciputra SMG Eye Clinic (2025) suggests that government subsidies or leasing schemes could facilitate the provision of phacoemulsification machines even for type 2 and 3 hospitals. International donations managed transparently and aligned with educational goals, rather than market expansion, can also strengthen these efforts. Without targeted interventions to close infrastructure gaps based on geographic location, Indonesia risks creating dual competencies among ophthalmologists—one cohort trained to global standards and another far behind.

Regulations, Accreditation, and Standardization

Effective regulations and robust accreditation systems are essential pillars in maintaining educational quality, building public trust, and ensuring patient safety. In the context of phacoemulsification training, Indonesia faces challenges in establishing enforceable standards and systematic evaluation mechanisms. PERDAMI (2020, 2024) has outlined detailed competency lists and procedural requirements, including minimum surgical quotas, supervision guidelines, and ethical standards. However, compliance with these standards is often voluntary and lacks adequate legal enforcement mechanisms. Bardiah (2012) reveals that only around 40% of surveyed institutions conduct formal audits of their training programs, and even fewer have systems to sanction violations.

A major weakness lies in the absence of an independent accreditation body with the authority to impose sanctions or revoke operational licenses. Current evaluations still rely on self-reporting by institutions, making them susceptible to bias or conflicts of interest, especially concerning reputation and funding. Moreover, the regulatory landscape is characterized by overlapping authorities among agencies. Curriculum updates from the Ministry of Education often conflict with clinical guidelines from the Ministry of Health or PERDAMI. This disharmony not only delays implementation but also creates legal ambiguities that institutions can exploit to evade compliance.

Best practices from countries like Singapore and the UK demonstrate that integrating curriculum execution with centralized assessment bodies enhances accountability. Using a national logbook, standardized OSCEs, and third-party evaluations can reduce variability and increase transparency (WHO, 2022). Indonesia could also benefit from digitizing its systems. A national e-portfolio linked directly to licensing and professional certification systems would enable real-time tracking of surgical cases, supervisor feedback, and resident reflective logs. Such systems have proven effective in Canada and Australia for ensuring training quality. In the long term, aligning domestic accreditation standards with international expectations is crucial not only for cross-border recognition but also for preparing Indonesian ophthalmologists for global mobility.

Ethical and Legal Challenges in Surgical Education

Performing surgical procedures on live patients raises sensitive ethical and legal issues, particularly in settings with limited resources and weak institutional oversight. One key issue is informed consent. Global ethical frameworks, including those issued by WHO (2022), require explicit

patient notification if a procedure is performed by trainees or residents. However, this practice is not uniformly implemented in Indonesia. Anecdotal evidence and small-scale studies indicate that consent forms often merely mention a 'surgical team' without clarifying the resident's role in the procedure. This lack of transparency undermines patient autonomy and risks eroding trust in the healthcare system. Greenberg et al. (2016) recommend standardizing consent protocols to identify the primary operator and the extent of trainee involvement.

In addition, residents themselves occupy a legally vulnerable position. If complications occur, legal responsibility typically falls on the institution, but without clear legal guidelines, accountability for both trainees and supervising consultants is often uncertain. Therefore, legal reforms are needed to define accountability boundaries and establish shared accountability systems that protect patient rights while supporting the educational process. Partnerships with corporate entities also present unique ethical challenges. While collaborations with medical device manufacturers can help bridge equipment gaps, there is a risk that training content may focus solely on specific brands or technologies. Walt et al. (2008) and Nasution et al. (2024) emphasize the importance of transparent and ethical governance in public-private partnerships to preserve educational integrity.

Lastly, ethical education itself often remains a low priority within clinical curricula. Ophthalmology residents generally receive minimal formal instruction on medical ethics, consent principles, and professional responsibility. Integrating ethics modules, case discussions, and reflective journals is thus essential to instill ethical reasoning as a core competency for ophthalmologists.

Quality Comparison with International Standards

Benchmarking is a crucial strategic step in elevating the quality and credibility of specialist ophthalmology training programs in Indonesia. International bodies such as the International Council of Ophthalmology (ICO, 2021), American Academy of Ophthalmology (AAO, 2022), and European Society of Cataract and Refractive Surgeons (ESCRS, 2019) have provided evidence-based guidelines for ophthalmology residency education.

These frameworks share key elements, including:

1) Explicit surgical procedure quotas
2) Simulation-based training modules
3) Direct supervised surgical procedures
4) Progressive, continuous evaluation methods
5) Compliance with patient safety and professional ethics principles

Indonesia has adopted some components of these international standards, but field implementation often falls short. For example, the AAO recommends a minimum of 80 cataract surgeries during training (AAO, 2023), yet many residents in Indonesia graduate with less than half that number due to limited case slots and faculty shortages (Gunawan et al., 2019). Countries like India have demonstrated best practices in implementing standardized training models. The All India Ophthalmological Society, in collaboration with international NGOs, established ophthalmology training centers in rural regions equipped with simulation devices and mobile surgical units. NIHR's

study (2021) shows that such initiatives significantly reduce surgical outcome disparities across regions.

However, adapting these international models requires contextualization. Importing Western standards wholesale without local adaptation is often unrealistic. Therefore, core competencies and quality assurance mechanisms can and should be customized to national needs and capacities. Additionally, mutual accreditation agreements can incentivize Indonesian institutions to raise quality standards, especially within the ASEAN health system integration context. Investment in benchmarking also strategically fosters academic mobility, faculty exchanges, and international collaborations, all contributing to cultivating a culture of excellence in surgical education.

CONCLUSION

Phacoemulsification is not just a technical necessity in cataract surgery practice but also reflects technological advances and systemic challenges in specialist medical education in Indonesia. Although national standards exist, training implementation still faces serious barriers, including infrastructure gaps, regulatory overlaps, and political and corporate interventions. This study asserts that improving phacoemulsification training requires a holistic approach encompassing alignment with global standards, application of decentralized training models, strengthening of ethical governance, and development of competency-based evaluation systems. Additionally, cross-sector synergy among ministries, professional organizations, educational institutions, and communities is needed to ensure equitable access to quality training. Thus, strengthening this training is not merely a technical matter but part of the state's commitment to guarantee the right to vision and equitable healthcare services for all Indonesians.

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