

## **Celebrating 20 Years of HOT: Ireland's Global Legacy in Anaesthesia Education**

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### **Abstract**

In 2005, the College of Anaesthesiologists of Ireland (CAI), in partnership with Irish Aid, launched the High dependency, Obstetric and Trauma (HOT) course in Malawi to address critical gaps in emergency care. Over two decades, it has become a cornerstone of anaesthesia education; training over 800 healthcare workers and fostering a sustainable, locally led workforce. Grounded in respect, partnership, and collaboration, the HOT course reflects the CAI's strategic commitment to global health. From early investment in postgraduate anaesthesia training in Malawi to its role in establishing the College of Anaesthesiologists of East, Central, and Southern Africa (CANESCA) and shaping Ireland's Global Health Curriculum, the CAI has championed ethical, effective, and scalable models of global engagement. This article explores how the HOT course puts global health principles into practice, advancing equity, strengthening systems, and delivering lasting impact.

### **Introduction**

In 2005, a small contingent of Irish anaesthetists made their way to a lakeside district hospital in Mangochi, Malawi to deliver the inaugural High dependency, Obstetric and Trauma (HOT) course, a course carefully designed to alleviate critical gaps in the country's emergency care system. It formed a key part of the shared, strategic vision of Irish Aid and the College of Anaesthesiologists of Ireland (CAI) to support national anaesthesia education and training, build anaesthesia capacity, empower local leadership, and foster meaningful and sustainable partnerships between countries and health systems.

Malawi in 2005 was a country grappling with overwhelming health burdens and limited resources. It had a maternal mortality rate of approximately 1120 per 100,000 live births; under five mortality rate of 110 per 1000 live births and trauma related mortality rate of 33 per 100,000 people. In addition, it had fewer than 4000 doctors, nurses, and midwives serving a population of approximately 12 million.

In the face of such systemic adversity, it's a wonder how twenty years on the HOT course has become a well-established pillar of anaesthesia education in Malawi, as important today as it was back then. As we celebrate this milestone, we reflect on the course's continued success, the CAI's early and enduring commitment to global health and how, despite meaningful progress, equitable access to safe medical care in Malawi, remains, for many, a privilege rather than a right.

### **Getting it right from the beginning; Course content, structure and design**

Effective course content, structure, and design began with attentive listening. Long before the first course was delivered, the faculty consulted local clinicians at the College of Medicine and the Department of Anaesthesia, Queen Elizabeth Central Hospital, Blantyre who identified key skills and competency gaps among frontline healthcare providers. With these priorities in mind, the faculty drew inspiration from well-established international programmes with strong simulation components particularly the two-day Managing Obstetric Emergencies and Trauma (MOET, Advanced life support group) and Advanced Life Support in Obstetrics (ALSO, American academy of family physicians). Local clinicians were again consulted to nominate frontline staff to attend the course. Careful to minimize disruption and cost incurred by attending clinicians and health districts, the course was run initially over three days at the weekend with transport and accommodation subsidised for delegates and faculty. The formal feedback sought after every course since then, has ensured content and structure remain responsive to delegates' needs and aligned with evolving international standards. Iterations have included a more accessible two-day format and a post-course, multiple-choice questionnaire in both English and the local language Chichewa.

### **Empowering local leadership**

From the outset, sustainable investment in local leadership through education and training was a core priority and Malawian doctors, nurses, midwives, and clinical officers were preferentially selected to lead HOT course delivery. Today, candidates who demonstrate instructor potential are identified during each course and supported to take on teaching roles. One of the most influential figures in this journey is Mr Cyril Goddia, a non-physician anaesthesia practitioner whose contributions to education and training were recognised with the awarding of the CAI President's medal in 2019, the first non-physician to receive this honour. It is the unwavering dedication of this small, committed group of Irish and Malawian anaesthesia providers that has sustained the HOT course across two decades, laying the foundation for a self-sustaining healthcare workforce capable of meeting Malawi's evolving medical needs.

## **Financial investment in training and education**

Meaningful impact could not have been made without strategic financial investment. Over the years, Irish Aid and the CAI have invested heavily in Malawi's health, education and training systems. This commitment has not only sustained the HOT course but also sponsored eligible doctors to undertake the Masters in Medicine (M.Med.) programme, a four-year subspeciality training pathway in anaesthesia launched by the CAI in 2008 and delivered in partnership with institutions in Malawi and South Africa. Notable graduates of this programme include Dr Samson Mndola, Secretary for Health, Dr Stella Chikumbanje, chief paediatric anaesthetist in Queen Elizabeth Hospital, Blantyre and Drs Delia Mabedi and Owen Malema, head of Anaesthesia in Zomba and Kazumu Central hospitals, respectively. Ongoing investment in CANECSA has strengthened Malawi's capacity to train specialist anaesthesiologists, reducing critical gaps in the country's healthcare workforce.

## **Single focus: Country and health system**

What sets this initiative apart is its singular focus on one country, one health system: Malawi. In a global health landscape often characterised by fragmented, short-term interventions across multiple regions, this long-term, country-specific commitment to education and training of local healthcare providers stands out. By concentrating resources and expertise, within Malawi's health and education system, the initiative has fostered deep institutional relationships, accountability, and locally led capacity-building aligning with best practices in global health equity.

## **Ireland's Global Health Vision: The CAI's role**

The HOT course's success over the last two decades reflects a broader national shift toward embedding global health principles and the UN sustainable development goals (SDGs) within postgraduate medical education. The CAI has been at the forefront of this movement, recognising from its inception that global health is not only an ethical imperative but a core professional responsibility. This commitment is evident in early initiatives such as the HOT course (2005) and the M.Med. programme (2008), which the College both devised and funded.

In 2012, the CAI helped establish CANECSA, a regional training and accrediting body aimed at building physician anaesthesia capacity across sub-Saharan Africa. CANECSA, in partnership with COSECSA (the College of Surgeons of East, Central, and Southern Africa) and the RCSI Institute of Global Surgery, has since, developed training sites, curricula, and internationally

benchmarked fellowship examinations and has established a scalable framework for specialist anaesthesia training across the region. The HOT course complements this effort by equipping non-physician providers with essential skills and medical knowledge in supporting safe emergency care.

In 2023, the CAI contributed to the development of a Global Health Curriculum for Postgraduate Training Bodies in Ireland, a collaborative initiative led by the Forum of Irish Postgraduate Medical Training Bodies. This curriculum outlines a set of competencies designed to prepare trainees for ethical, effective, and sustainable engagement in global health. It emphasises cultural humility and equity, health systems awareness, sustainable partnerships, advocacy and leadership, bidirectional learning and mutual respect.

### Present and future Challenges

Malawi's rapidly growing population, projected to surpass 26 million by 2030, places mounting pressure on a health system that, despite commendable progress, continues to grapple with challenges. The maternal mortality rate stands at 225 per 100,000 live births (SDG3 target; 70 by 2030), the under-five mortality rate is now 38.3 per 1,000 live births (SDG3 target; 25 by 2030) and road traffic accidents comprise the third leading cause of trauma-related deaths in Malawi, with an estimated 31.4 per 100,000 population, one of the highest in sub-Saharan Africa.

| Indicator                                                | 2003  | 2013 | 2023 |
|----------------------------------------------------------|-------|------|------|
| <b>Maternal Mortality rate (per 100,000 live births)</b> | ~1100 | 410  | 225  |
| <b>Under five mortality rate (per 1,000 live births)</b> | 131.5 | 64   | 48   |

~Best Estimates

Healthcare capacity is constrained by limited infrastructure and a critical shortage of skilled personnel particularly in rural areas. As of 2023, Malawi had only 0.5 physicians and 5 nurses/midwives per 10,000 people, far below WHO recommendations. Current data estimates that there are 109 anaesthesia providers across 27 central and district hospitals equating to one provider per 128,000 population. Of these, 95.4% are non-physician anaesthesia providers, primarily Anaesthesia Clinical Officers (ACOs) who undergo 18-months postgraduate training in anaesthesia.

While education and training initiatives have expanded, there is a significant financial barrier to entry and recruitment and retention of skilled professionals in Malawi remains a challenge.

The health sector is heavily and increasingly dependent on external funding, with 56% of total health expenditure coming from international donors. This leaves the system vulnerable to changing global economic landscapes and results in inconsistent standards and quality of care across the country. Despite progressive increases in the health budget, investments in health fall short of costed needs and regional and international benchmarks.

For the average Malawian, the complex interplay of infrastructural, financial, and cultural barriers makes accessing healthcare very difficult and death from preventable and treatable disease remains an ever-present threat.

### **Looking ahead: What next for CAI and Malawi?**

Tackling these challenges is no small feat and without robust nationally derived policy and investment in both education and health, transforming the health system for both user and provider in Malawi will not be possible. Yet, the achievements of the M.Med., HOT, and CANESCA graduates, many of whom are driving tangible improvements in both clinical and non-clinical roles, offer a compelling model for what is possible when robust, postgraduate training exists.

With this infrastructure now well established, future evaluation of these programmes must extend beyond simply counting graduates and instead examine workforce stability, disparity in health services coverage, and health outcomes drawing on established global Human Resources for Health (HRH) evaluation frameworks. Underpinning this framework is a commitment to sustainable recruitment and retention of healthcare practitioners particularly in rural settings; investing in candidates who are committed to remaining in Malawi throughout their careers. One approach is public sponsorship of postgraduate education, contingent on candidates fulfilling a period of domestic service when they graduate. This system is already in place for anaesthetic clinical officers whose district health area sponsors them to train in tertiary centres before returning home for work.

Once recruited, funded postgraduate training, continuous professional development, and opportunities for career progression aided by organisations such as CANESCA, can help sustain motivation and professional identity and reinforce the stability of the national workforce.

### **20 years of HOT**

To mark the twenty-year anniversary of HOT, the faculty returned to the capital city Lilongwe for two further courses, attended the third CANESCA annual scientific meeting and celebrated

this milestone alongside politicians, dignitaries, and clinicians at a special ceremony with the Irish embassy.

The CAI remains committed to advancing global health equity in Malawi aligned with the UN Sustainable Development Goals and will continue to evaluate programme outcomes to ensure their investment delivers measurable value.

As we celebrate this great achievement, we honour the hundreds of clinicians who have participated, taught, and led. Their work continues to save lives, empower communities and advance the cause of equitable healthcare. Ireland's legacy in global anaesthesia education is one of action, partnership, and enduring impact and the HOT course stands as its brightest beacon.

#### **Declarations of Conflicts of Interest:**

Dr Clarke is a fellow of the College of Anaesthesiologists of Ireland. Otherwise, none declared.

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