

# Addressing the burden of cancer in East Africa through cascaded training

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**Background:** The Medical Training and Fellowship (METAF) programme aims to improve early detection and treatment of cancer in East Africa.

**Methods:** Needs assessment, followed by "train the trainer" workshops and cascaded training courses facilitated by local trainers, supported by expert faculty.

**Results:** 13 clinical training activities have been delivered and 289 doctors trained across East Africa.

**Conclusions:** The TOT solution to the need for a rapid cascade of knowledge has been well received.

In late 2015, the Royal College of Physicians (RCP) was invited to act as technical partner on an East African Development Bank-funded project designed to increase the early detection and treatment of cancer in East Africa. Following a needs assessment in January 2016, the Medical Training and Fellowship (METAF) programme was born. This article provides an overview of the programme's background, aims, progress to date, successes and challenges.

## Background

The majority of global cancer incidence and deaths occur in low- and middle-income countries (1). Deaths attributed to cancer in Africa are rising at an alarming rate and should current trends continue, it is estimated there will be 1.4 million new cases and 1 million deaths from cancer by 2030 (2).

Late-stage diagnosis has been identified as a key factor associated with Africa's high cancer mortality rate, with approximately 80% of patients beginning treatment when the disease is at an advanced stage (3). For example, five-year female breast cancer relative survival rates are 46% in Uganda, compared with 90% in the United States (4). Across East Africa there is a growing burden of cancer with 60% more Africans now dying from cancer than from malaria (2). The gradual epidemiological transition towards non-communicable diseases (NCDs) means that strengthening capacity in the specialty of oncology is more important than ever.

It was in recognition of these challenges that the East African Development Bank's (EADB) Medical Training and Fellowship (METAF) programme was founded. The METAF programme is a four-year project (2016–2020), funded by the EADB and delivered in partnership by the British Council and the Royal College of Physicians (RCP).

The METAF programme and partnership is heavily aligned with the United Nations' 2030 Agenda for Sustainable Development and the associated Sustainable Development

Goals, which came into force in at the beginning of 2016, recognizing NCDs as a major challenge for sustainable development and supporting the use of partnerships and collaboration across countries and organizations to tackle these challenges and to meet these goals (5).

## Aims and objectives

The METAF programme aims to improve early detection, research and treatment of cancer in East Africa by: increasing the levels of awareness of cancer amongst the medical officers at district and regional hospitals; increasing early referrals and diagnosis of cancer patients; empowering medical officers at district and regional hospitals to deliver care and manage urgent symptoms of cancer; and developing networks and linkages for cancer care among different strata of healthcare workers in Kenya, Tanzania and Uganda.

The programme covers short clinical training courses across Kenya, Tanzania and Uganda delivered by selected physicians from the RCP alongside senior faculty-based physicians across East Africa. Through the delivery of clinical training courses, participants are equipped to better undertake acute triage of cancer presentation and to manage urgent symptoms of cancer within their own district or regional hospital.

## Methods

### Needs assessment

In 2016, the programme partners conducted a week-long needs assessment, holding meetings with national representatives in oncology from across Kenya, Tanzania and Uganda to assess health needs, potential risks, and to refine the project details to ensure alignment with the national priorities. The needs assessment also involved focus group discussions with identified oncology trainees and contacting the Ministries of Health in each of the participating countries. The needs assessment concluded that a cascade model of training was

Figure 1: Agenda 2030 – 17 goals sustainable development goals



Figure 2: Map of the East African region



Figure 3: Oncology training course, Bagamoyo, Tanzania (September 2017)



required, to allow for rapid dissemination of information, as well as country-specific content and sustainability. Therefore, it was determined that a “train the trainer” component should be incorporated to reinforce teaching expertise and maximise reach. The aim of the training would be to increase capacity to undertake acute triage of cancer presentation within a district or regional hospital and to manage urgent symptoms

of cancer. An initial series of “Training of Trainers” (ToT) courses would be delivered to participants with a Master of Medicine (MMed) or those currently within a MMed programme. A selection of the participants would be identified as trainers to deliver subsequent cascaded courses across all participating countries. It was also determined that priority should be given to applicants deployed, or soon to be deployed, outside of major urban centres.

From the needs assessment,

local senior oncology consultants were nominated as course leaders (course convenors) to lead on course curriculum, design and content, and to advise and support the recruitment of local course teaching faculty and course participants. Local oncology faculty were recruited along with faculty from the RCP to develop and deliver the ToT oncology workshops.

*Training of Trainers oncology workshops*

After the official launch of the programme in August 2016, a series of residential ToT oncology workshops were delivered. The contents of the ToT oncology workshops were designed to upgrade the participant’s knowledge of cancer epidemiology; how common cancers in East Africa present and are diagnosed and managed; and how to perform acute triage of cancer patients, manage urgent symptoms and refer without delay. The aim was also to equip the participants to teach and share experience acquired through this course with other health workers at lower health facilities.

The curriculum involved the participant delivering case-based discussions, e.g., “A man with urinary symptoms”, supplemented by a limited number of generic lectures delivered by the RCP and local faculty (“Palliative Care”, “Treatment Toxicities”, “HIV and Cancer”, etc.). Each of the 20 case-based discussions were developed to reflect the most common cancers in each of the participating countries. The content was designed to encourage participant involvement and allow flexibility for local faculty expertise and interests. Each trainer practised delivering a case-based discussion and was given feedback on presentation and teaching methods by both local and RCP oncology education experts. Evaluation of knowledge and confidence gained was measured by pre- and post-tests, as well as post-course discussions with local and RCP faculty.

*Cascaded oncology training course*

After the delivery of three ToT workshops, a cohort of 39

Figure 4: Oncology training course, Nairobi, Kenya (September 2018)



Figure 5: Refresher ToT course, Entebbe, Uganda (April 2018)



trainers across Kenya, Tanzania and Uganda were trained to facilitate the future “cascaded” oncology training courses. Following feedback from both the trainers and faculty, the course content was amended to reduce the amount of background information and make the curriculum as interactive as possible.

Each cascaded oncology training course was facilitated by approximately five trainers who had participated in the previous ToT workshops, supported by local and RCP faculty. The content again consisted of clinical cases to illustrate common cancers in East Africa with a strong emphasis on symptom management and appropriate decision-making, taking into account local medical resources. Each trainer would ask the course participants what they would look for on examination, how to investigate and how to treat the presenting patient. The RCP and local faculty members on each case had prepared a PowerPoint slide set to facilitate discussion and to add more detail, particularly around epidemiology, treatment and priorities of care. The trainers facilitating each case answered the majority of the question, with the floor opened to the other delegates after each session.

Throughout the courses, emphasis was made on the acute triage of patients ensuring that the right cancer and the right patients were referred to relevant referral centres (Uganda Cancer Institute, Ocean Road Cancer Institute and Kenyatta National Hospital). Emphasis was made on performance status of the patient, identification of symptoms and palliation in those patients unfit for treatment.

Within the oncology training in Kenya, the concept of “Cancer

Mashinani”, cancer care at the grassroots level, is emphasized. Group discussion was encouraged to help identify ways of strengthening referral pathways. The residential model of the training allowed for the course participants to have open discussion with faculty and trainers during break and evening meals, and encouraged the building of cancer healthcare and professional networks.

#### *Refresher ToT workshops*

In 2018, a refresher ToT workshop was held for the trainers in Uganda to regroup and share experiences from the cascaded courses held in Soroti and Mbarara, and to discuss the impact of the programme on the trainer’s practice and how to improve future trainings. Within the refresher ToT, the facilitators also highlighted areas that had not been included in the initial curriculum including: communication skills; breaking bad news; effective PowerPoint presentation skills; cancer myths and misconceptions; and cancer screening. Following this insightful workshop, a post-course “Knowledge, Attitudes and Practice” survey was developed to be circulated to both trainers and course participants.

### **Results**

The monitoring and evaluation framework draws from management information systems, participant feedback and trainer/faculty feedback.

#### *Management information systems*

Data gathered from application forms records indicate numbers attending the courses, the demographic makeup of participants and the geographical spread of practice. Since the launch of METAF in 2016, 13 oncology training activities have been delivered; four ToT oncology workshops and nine cascaded oncology training courses. The total number of doctors having completed an oncology training workshop or course across East Africa is 289 (Table 1).

Feedback, gathered by participant feedback forms, suggests that over 1,500 clinical staff will benefit from the knowledge gained on the training courses through mentoring by course participants at home facilities. In addition to high numbers of participants, demographic data collected from application forms suggest a wide geographical spread across Kenya, Tanzania and Uganda.

Multiple choice tests were completed at the beginning and end of each training and the test scores compared to evaluate a change in knowledge. Compared pre- and post-test scores suggest an average 12% increase in clinical knowledge (Table 2).

#### *Participant feedback*

Evaluation forms were circulated to course participants at

**Table 1 : Number of participants**

| Clinical courses   | Kenya      | Tanzania   | Uganda     | Rwanda   | Total      |
|--|------------|------------|------------|----------|------------|
| ToT, Nairobi, Kenya  | 15         | 12         | 0          | 0        | 27         |
| ToT, Kampala, Uganda   | 0          | 0          | 19         | 0        | 19         |
| ToT, Dar es Salaam, Tanzania                                   | 10         | 7*         | 0          | 0        | 10*        |
| Oncology (cascaded) Training course, Soroti, Uganda            | 0          | 0          | 17         | 0        | 17         |
| Oncology (cascaded) Training course, Bagamoyo, Tanzania        | 0          | 19         | 0          | 0        | 19         |
| Oncology (cascaded) Training course, Machakos City, Kenya      | 29         | 0          | 0          | 0        | 29         |
| Oncology (cascaded) Training course, Mbarara, Uganda           | 0          | 0          | 20         | 0        | 20         |
| Oncology Refresher ToT Course, Entebbe, Uganda                 | 0          | 0          | 12*        | 0        | 0*         |
| Oncology (cascaded) Training Course, Mbeya, Tanzania           | 0          | 23         | 0          | 0        | 23         |
| Oncology (cascaded) Training Course, Machakos, Kenya           | 32         | 0          | 0          | 0        | 32         |
| Oncology (cascaded) Training Course, Nairobi, Kenya            | 42         | 0          | 0          | 0        | 42         |
| Oncology (cascaded) Clinical Training Course, Entebbe, Uganda  | 0          | 0          | 21         | 0        | 21         |
| Oncology (cascaded) Clinical Training Course, Mwanza, Tanzania | 0          | 30         | 0          | 0        | 30         |
| <b>Total</b>   | <b>128</b> | <b>84*</b> | <b>77*</b> | <b>0</b> | <b>289</b> |

ToT = Training of Trainers.

\*Not counted in total, refresher training for those that have already completed ToT

convenors, local trainers and RCP faculty to gather feedback on the structure of the programme and delivery of the curriculum. The feedback seeks to capture the observations of the trainers and faculty, identify key challenges and lessons learned. The reported feedback from trainers and faculty have contributed to the continued revision of the curriculum content and design. Feedback suggests that valuable partnerships have been formed and that the exchange in knowledge across geographies has benefited both RCP faculty and local faculty.

*“Observing healthcare in a resource-poor environment was hugely influential to me and made me realise how much UK and Tanzanian doctors can learn from each other. In the District Hospitals of Tanzania, clinical acumen is often the only tool for diagnosis. While we are lucky in the UK to have access to state-of-the-art facilities, it is essential to retain fundamental medical skills and the art of complex decision-making in the absence of diagnostic tests.”*

*Dr Georgina Wood, RCP volunteer*

### Challenges and limitations

Owing to the variety of partners involved in the project and the multitude of stakeholders both at the country and regional levels, the

**Table 2 : Average percentage increase between the pre- and post-course test scores**

| Clinical courses   | Average percentage increase |
|--|-----------------------------|
| ToT, Nairobi, Kenya  | 32%                         |
| ToT, Kampala, Uganda   | 19%                         |
| ToT, Dar es Salaam, Tanzania                                   | 12%                         |
| Oncology (cascaded) Training course, Soroti, Uganda            | 19%                         |
| Oncology (cascaded) Training course, Bagamoyo, Tanzania        | 17%                         |
| Oncology (cascaded) Training course, Machakos City, Kenya      | 31%                         |
| Oncology (cascaded) Training course, Mbarara, Uganda           | 17%                         |
| Oncology Refresher ToT course, Entebbe, Uganda                 | N/A                         |
| Oncology (cascaded) Training Course, Mbeya, Tanzania           | 11%                         |
| Oncology (cascaded) Training Course, Machakos, Kenya           | 12%                         |
| Oncology (cascaded) Training Course, Nairobi, Kenya            | 7%                          |
| Oncology (cascaded) Clinical Training Course, Entebbe, Uganda  | 19%                         |
| Oncology (cascaded) Clinical Training Course, Mwanza, Tanzania | 12%                         |
| <b>Total</b>   | <b>12%</b>                  |

ToT = Training of Trainers.

the end of each training to elicit feedback on the quality of training and logistical organization. Post-training surveys were circulated to and completed by course participants to highlight how they have implemented the knowledge gained into their everyday practice. These post-training surveys are also used as an opportunity to learn more about resource availability and the expected level of dissemination of information within participant's local facilities, which can be used to inform and improve future trainings. The feedback gathered within the evaluation forms and post-course surveys suggests a self-reported higher index of suspicion for cancer, increase in referrals and confidence in managing patients with cancer.

### Trainer/faculty feedback

Training reports are also completed by the local course

implementation of the METAF programme has not been without challenges. Challenges have ranged from fully understanding the structure of healthcare in each of the participating countries to political and workforce changes in both East Africa and the United Kingdom.

Other challenges have varied from getting the right people involved (faculty, trainers, government stakeholders, etc.), time, communication, politics, geography and infrastructure.

However, the most significant limitation of the programme is how its impact can be effectively measured. The implemented methods of monitoring and evaluation (post-course surveys; refresher ToTs, focus group discussions) all mainly reply on self-reporting from participants and trainers. Given the remit of the programme, it is not possible to equate self-reported increases in knowledge and confidence to patient outcomes.

## Conclusions

Across Kenya, Uganda and Tanzania there is a growing burden of NCDs and cancer. The growing burden of cancer in East Africa means that strengthening capacity in the specialty of oncology is more important than ever. The METAF programme and partnership between the EADB, British Council and RCP has aimed to strengthen capacity in cancer care in Kenya, Tanzania and Uganda through a unique training model. The METAF training model, with the curriculum design and delivery teams drawing expertise from both the RCP and East Africa, has guaranteed both world-class approach and content while still ensuring contextual relevance. The ToT and a cascade model of training courses has allowed for rapid dissemination of information, maximising reach and increasing teaching capacity. The programme has been well received by participating doctors, trainers and faculty and has been demonstrated to be effective within this multinational programme. While the complex programme has endured several challenges, the methodology may be applicable to similar needs in other low- and middle-income countries.

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