Final report

East African Development Bank's Medical Training and Fellowship (METAF) programme

Capacity building for the provision of oncology and neurology services in East Africa

November 2020

Royal College of Physicians

eadb

BRITISH COUNCIL

Cover image: Oncology cascaded training course, Nairobi, Kenya, Sept 2018

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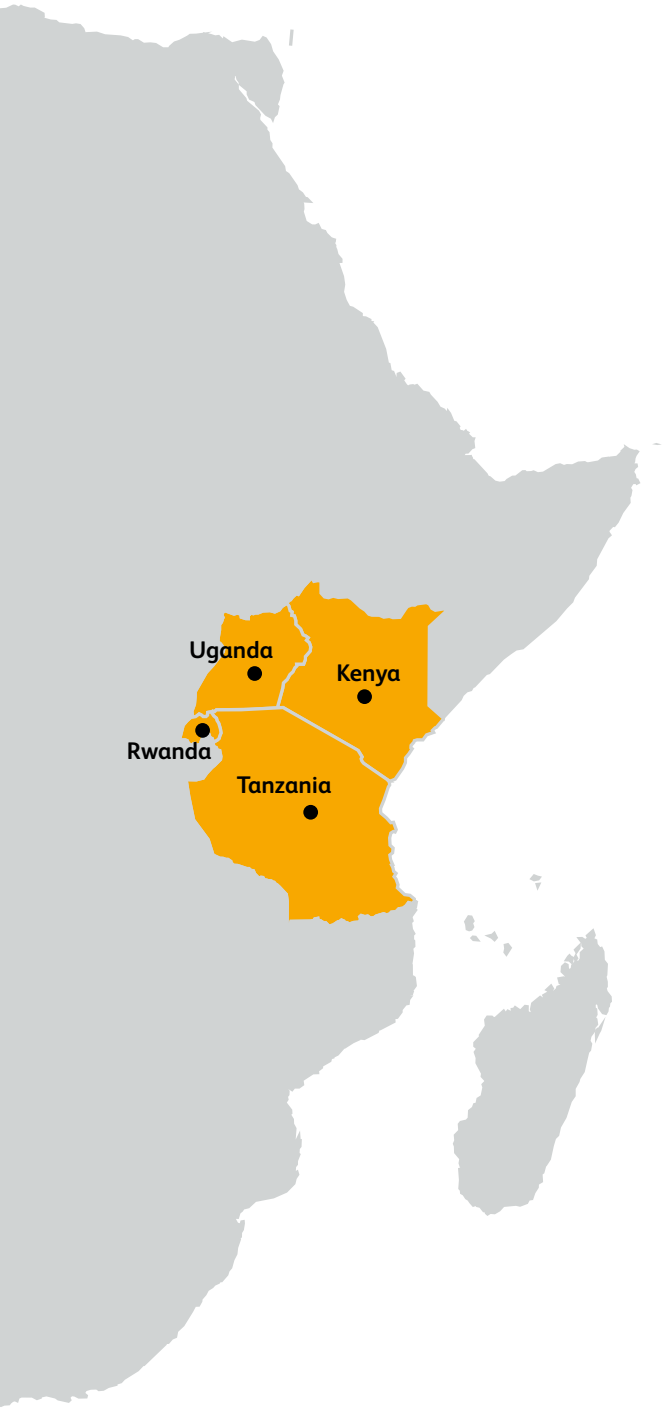
Executive **summary**

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. For example, 5-year female breast cancer relative survival rates are 46% in Uganda, compared with 90% in the United States.[3] Across East Africa there is a growing burden of cancer with 60% more Africans now dying from cancer than from malaria.[2]

In addition to the growing burden of cancer in Africa, low- and middle-income countries have also seen a significant rise in neurological conditions, such as stroke.[6] Epilepsy is the most common neurological disorder seen in primary care in developing regions of the world.[5] The World Health Organization (WHO) has reported a significantly lower number of specialists in neurology in Africa than in the other WHO regions; the median number of neurologists per 100,000 population is extremely low in Africa (0.03 vs 0.07 in Southeast Asia, 0.32 in the eastern Mediterranean, 0.77 in the western Pacific, 0.89 in the Americas and 4.84 in Europe).[4] The gradual epidemiological transition towards non-communicable diseases (NCDs) means that strengthening capacity in the specialties of oncology and neurology is more important than ever.

◀ Map of East Africa showing countries included in METAF programme

Project partners

In recognition of these challenges and with support from the East African Development Bank (EADB), the Royal College of Physicians (RCP) has been working alongside the British Council to support the development and delivery of the Medical Training and Fellowship (METAF) programme since 2016.

- The EADB was established in 1967 with the remit to provide financial and other support to its member countries, which currently are Kenya, Tanzania, Rwanda and Uganda. The EADB's mission is to promote sustainable socio-economic development in East Africa by providing development finance, support and advisory services.

- The British Council is the UK's international organisation for cultural relations and educational opportunities. Its purpose is to build engagement and trust for the UK through the exchange of knowledge and ideas between people worldwide. It seeks to achieve its aims by working in education, science, sport, governance, English and the arts.

- The RCP is a registered charity that aims to ensure high-quality care for patients by promoting the highest standards of medical practice. It provides and sets standards in clinical practice and education and training, conducts assessments and examinations, quality assures external audit programmes, supports doctors in their practice of medicine, and advises the government, public and the profession on healthcare issues.

The project was developed and supported by specialist physicians in East Africa alongside volunteer teaching faculty from the RCP membership in the United Kingdom and abroad. The project partners also worked closely with the ministries of health in Kenya, Tanzania, Uganda and Rwanda in the selection of course participants and faculty, and to ensure the course content aligned with national health priorities.

Aims of the partnership

The METAF programme aimed to improve early detection, research and treatment of cancer and neurological disorders in East Africa by:

- increasing levels of awareness of cancer and neurological disorders among the medical officers at district and regional hospitals

- increasing early referrals and diagnosis of cancer patients and patients with neurological disorders

- empowering medical officers at district and regional hospitals to deliver care and manage patients with neurological disorders and urgent symptoms of cancer

- developing networks and linkages for cancer care among different strata of healthcare workers in Kenya, Tanzania, Uganda and Rwanda.

The programme covered short clinical courses across Kenya, Tanzania, Uganda and Rwanda delivered by RCP expert physicians alongside senior faculty based across East Africa. Through the delivery of clinical training courses, participants were equipped to better diagnose and manage their patients with common neurological disorders or undertake acute triage of cancer presentation and to manage urgent symptoms of cancer within district/regional hospitals.

Beneficiaries of the training programme came from a wide geographical spread in each country to ensure that improved diagnosis and treatment in cancer and neurological disorders could be deployed outside the urban teaching hospitals. Feedback from participants, course conveners, visit coordinators and international course faculty indicated significant gains in learning and the formation of valuable partnerships.

Training

> The aim was also to equip the participants to teach and share experience acquired through this course with other health workers at community health centres.

Development

In 2016, the programme partners conducted a 1-week needs assessment, holding meetings with national representatives in oncology and neurology from across Kenya, Tanzania, Rwanda and Uganda to assess health needs and 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 and neurology trainees and contacting the Ministries of Health in each of the participating countries.

The needs assessment concluded that the oncology programme should adopt a cascaded model of training, to allow for rapid dissemination of information as well as country-specific content and sustainability. 'Training of trainers' (ToT) workshops were developed to reinforce teaching expertise and maximise reach. A selection of 'trainers' would be identified 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 and neurology 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. Teams of local faculty were joined by faculty from the RCP to develop and deliver the ToT workshops and the neurology clinical training courses.

Delivery

Oncology ToT workshops

The content 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 community health centres.

▲ Neurology clinical training, Moshi, Tanzania, April 2017

The curriculum involved the participant delivering case-based discussions, eg '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.

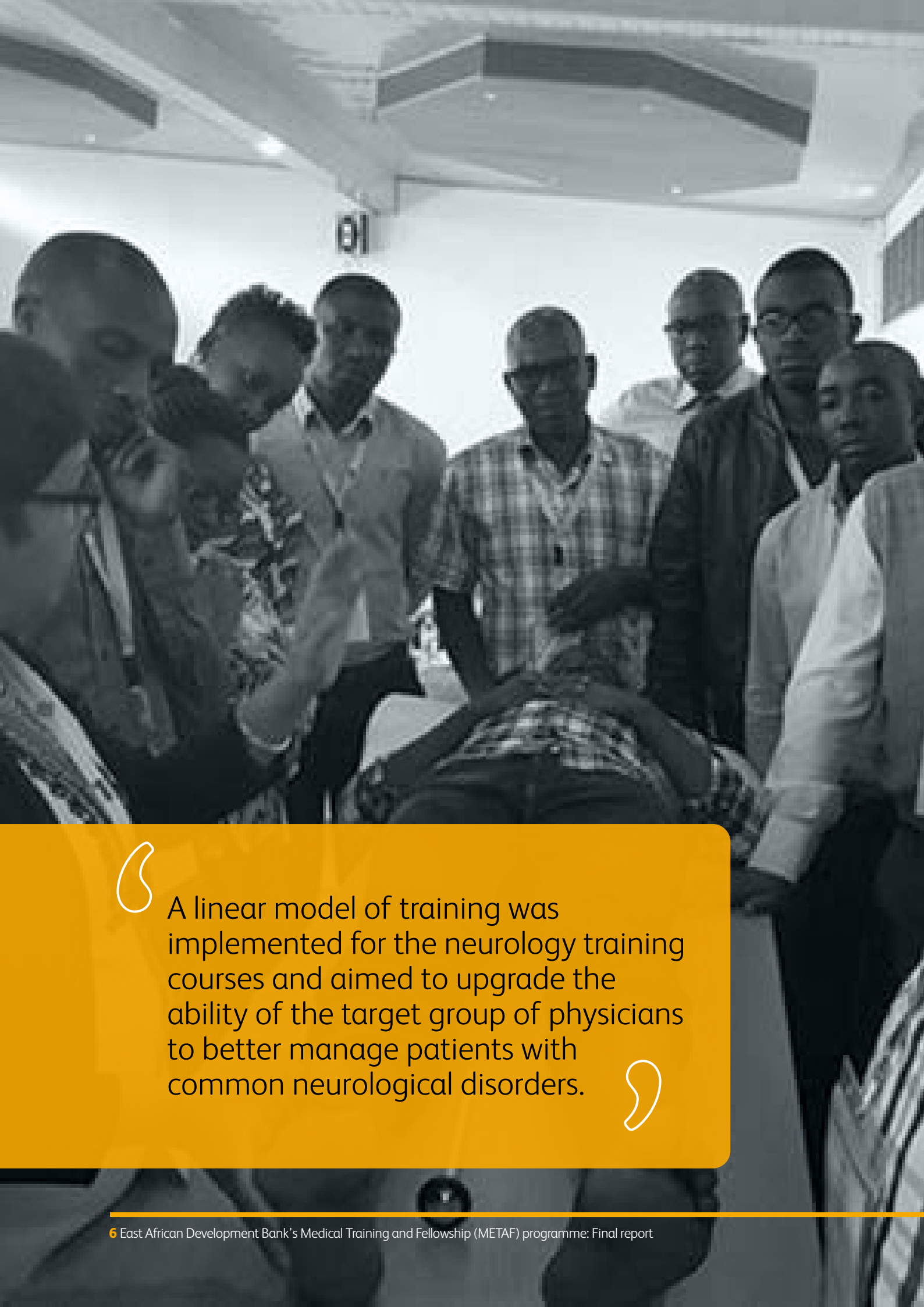
The content was designed to encourage participant involvement and allow flexibility for local faculty expertise and interests. Each trainer practised delivering a case-based discussion and was given feedback on presentation and teaching methods by both local and RCP oncology education experts. Evaluation 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 courses

After the delivery of three ToT workshops, a cohort of 58 trainers across Kenya, Tanzania, Uganda and Rwanda 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 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, considering local medical resources.

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, was emphasised. 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 discussions with faculty and trainers during breaks and evening meals and encouraged the building of cancer healthcare and professional networks.



> A linear model of training was implemented for the neurology training courses and aimed to upgrade the ability of the target group of physicians to better manage patients with common neurological disorders.

Oncology refresher ToT workshop

In 2018, a refresher ToT workshop was held for the oncology 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 training. 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.

▲ Oncology cascade training, Soroti, Uganda, June 2017

Neurology clinical training courses

A linear model of training was implemented for the neurology training courses and aimed to upgrade the ability of the target group of physicians to better manage patients with common neurological disorders. The course covered the epidemiology, pathophysiology, diagnosis and management of key neurological disorders (neurological infections, epilepsy, stroke, dementia, movement disorders, headache, spinal cord pathology, brain tumours and traumatic brain injury). The course programme consisted of didactic lectures, case presentations, workshops and question/answer sessions with the faculty. The programme incorporated sessions on paediatric neurology and a practical case presentation day, responding to feedback from the first course in Nairobi.

Courses incorporated a comprehensive but above all practical review of the most important neurological conditions in all ages, as well as hands-on neurological examination. The lectures covered the main neurological disorders experienced in Africa. These ranged from infections including HIV to epilepsy, stroke, paraplegia, neuropathy, movement disorders, dementia, head injury, cerebral palsy and genetic diseases. However, interspersed between formal lectures were teaching video sessions and case presentations by the participants.

In-country clinical training workshops key features

- Developed between RCP volunteer faculty and local faculty
- Courses based on case-based discussions supplementing lectures
- Strong emphasis on participant involvement, symptom management, triage and doing the doable
- Flexibility for local faculty expertise and interests
- Facilitated by trainers who participated in the previous ToT workshops, supported by local faculty and RCP faculty (oncology only)
- Emphasis on pathways of referral
- Continuous revision of content

◀ Neurology clinical training course, Butare, Rwanda, February 2018

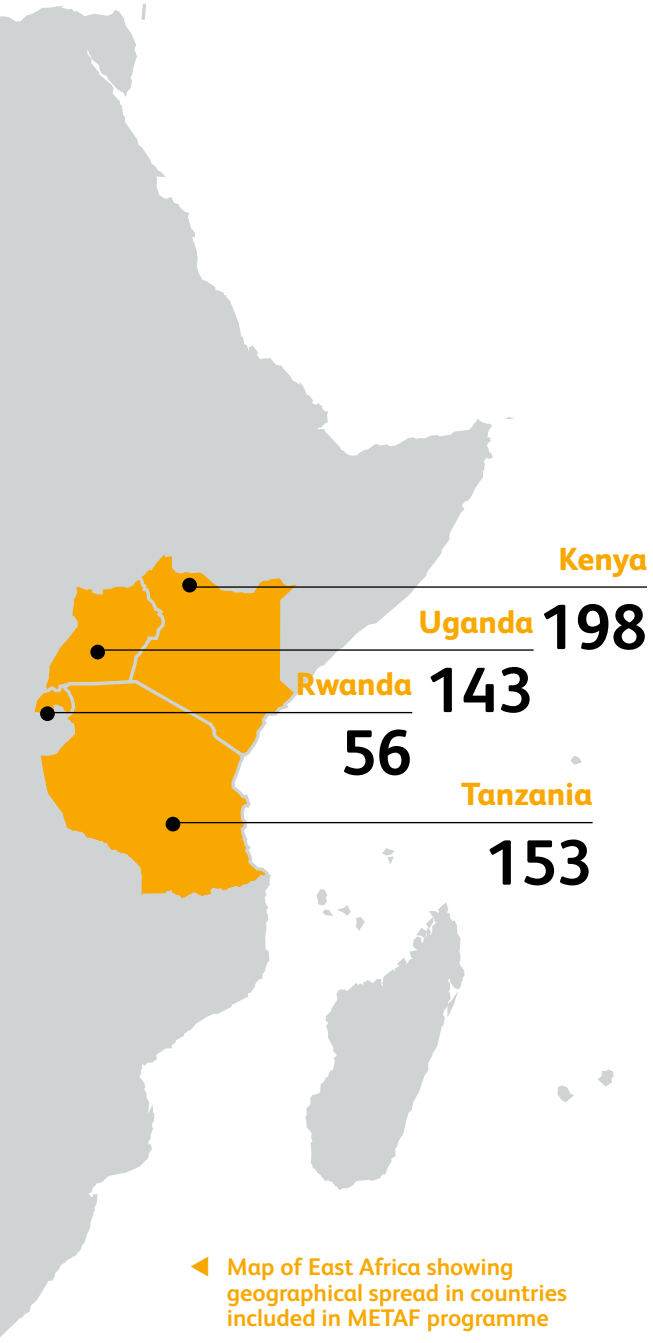
Evaluation **and impact**

The evaluation and impact assessment of the programme consisted of analysis of reach, outputs and outcomes, learning assessments, participant/facilitator feedback and post-training surveys.

Reach

Data gathered from application form records indicated numbers attending the courses, the demographic makeup of participants and the geographical spread of practice.

The project provided access to training for doctors from across Kenya, Tanzania, Uganda and Rwanda. The travel, accommodation and subsistence provided to all course participants and faculty allowed doctors based outside the major urban centres to attend, supporting the tackling of health inequalities between urban and rural populations.



◀ Map of East Africa showing geographical spread in countries included in METAF programme

Key outcomes

- **27 clinical training activities** have been delivered across East Africa
  - **5** oncology ToT workshops
  - **12** oncology cascaded training course
  - **10** neurology clinical training courses
- **550 doctors from 4 countries across East Africa** upskilled in the diagnosis, treatment and management of cancer and neurological disorders
- **58 oncology 'trainers'** upskilled to teach and share experience with other health workers at community health centres
- Over **5,000 healthcare professionals** estimated to have benefited from the trainings through mentoring by course participants at home facilities
- **Multiple networks** of doctors established to strengthen the referral pathways and peer support

Table 1. METAF programme training courses held 2016–20

Year	Training	Country	Location	Kenya	Tanzania	Uganda	Rwanda	Total
2016	Neurology	Kenya	Nairobi	10	9	0	0	19
2016	Neurology	Uganda	Kampala	0	0	15	0	15
2016	O-ToT	Kenya	Nairobi	13	9	0	0	22
2016	O-ToT	Uganda	Kampala	0	0	19	0	19
2017	Neurology	Tanzania	Moshi	0	20	0	0	20
2017	O-ToT	Tanzania	Dar es Salaam	10	1	0	0	11
2017	O-Cascade	Uganda	Soroti	0	0	17	0	17
2017	O- Cascade	Tanzania	Bagamoyo	0	19	0	0	19
2017	O-Cascade	Kenya	Machakos	29	0	0	0	29
2017	Neurology	Uganda	Kampala	0	0	22	0	22
2017	O-Cascade	Uganda	Mbarara	0	0	20	0	20
2017	O-ToT	Rwanda	Kigali	0	0	0	6	6
2018	Neurology	Kenya	Nairobi	16	0	0	0	16
2018	Neurology	Rwanda	Butare*	0	0	0	20	20
2018	O-Refre- ToT	Uganda	Entebbe	0	0	12**	0	12**
2018	O-Cascade	Tanzania	Mbeya	0	23	0	0	23
2018	O-Cascade	Kenya	Machakos	32	0	0	0	32
2018	Neurology	Tanzania	Moshi	14	10	0	0	24
2018	Neurology	Rwanda	Butare*	0	0	10	10	20
2018	O-Cascade	Kenya	Nairobi	42	0	0	0	42
2018	Neurology	Kenya	Nairobi	10	12	0	0	22
2018	O-Cascade	Uganda	Entebbe	0	0	21	0	21
2018	O-Cascade	Tanzania	Mwanza	0	30	0	0	30
2019	Neurology	Rwanda	Butare	0	0	0	20	20
2019	O-Cascade	Kenya	Mombasa	22	0	0	0	22
2019	O-Cascade	Tanzania	Kigoma	0	20	0	0	20
2019	O-Cascade	Uganda	Gulu	0	0	19	0	19
Total				**198**	**153**	**143**	**56**	**550**

* Two separate neurology courses were held in Butare in 2018, one in February and one in July
** Not counted in total, refresher training for those that have already completed ToT
O-Cascade = oncology cascade
O-Refre-ToT = oncology refresher training of trainers
O-ToT = oncology training of trainers

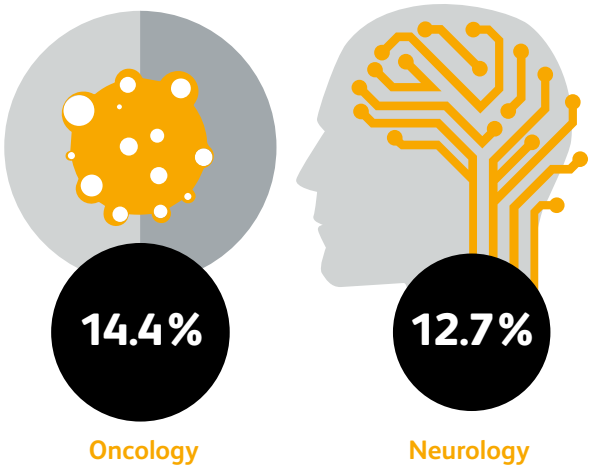
Neurology clinical training course, Nairobi, Kenya, September 2016

> The programme incorporated sessions on paediatric neurology and a practical case presentation day, responding to feedback from the first course in Nairobi.

Learning assessments

Through testing the knowledge of participants on key aspects of oncology and neurology before starting the training courses, and re-testing at the end of the course, we were able to gather evidence on knowledge gained.

Average score improvement



Participant feedback surveys

Evaluation forms were circulated to course participants at the end of each training course to elicit feedback on the quality of training and logistical organisation. Post-training surveys were circulated to, and completed by, course participants for them to highlight how they have implemented the knowledge gained into their everyday practice.

These post-training surveys were 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 training. The feedback gathered within the evaluation forms and post-course surveys suggested a self-reported higher index of suspicion for cancer, and an increase in referrals and confidence in managing patients with cancer. Evaluation and surveys of participants of the neurology trainings reported increased confidence levels in conducting neurological history taking and examination of patients presenting with neurological conditions.

> I will make better clinical examination and orient patient on better imaging in order to make diagnosis.
>
> **Participant on neurology training in Butare, Rwanda February 2018.**

Oncology cascaded training, ▶
Soroti, Uganda, July 2017

Trainer/faculty feedback

Training reports were completed by the local course convenors, local trainers and RCP faculty to gather feedback on the structure of the programme and delivery of the curriculum. The feedback captured the observations of the trainers and faculty, and identified key challenges and lessons learned. The reported feedback from trainers and faculty contributed to the continued revision of the curriculum content and design. Feedback suggested that valuable partnerships were formed and that the exchange in knowledge across geographies 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**

> It is a rewarding experience as it offered me the opportunity to share my knowledge of and skills in management of neurological diseases with younger colleagues, serving as a role model in neuroscience. I benefited from the practical mentoring activities which played out during the informal sessions – advising and counselling trainees on opportunities in neurology. Also, this training afforded me an opportunity to establish professional collaboration and friendship with the local faculty and trainees.

Professor Olubunmi Ogunrin, RCP volunteer

▲ **Oncology cascaded training, Mbeya, Tanzania, April 2018**

Learning and recommendations

New knowledge cannot always be translated into action. Some participants found that due to limited resources and infrastructure, such as limited access to medicines and laboratory support, some techniques and lessons learned were difficult to implement.

More targeted efforts are required to ensure that doctors from rural areas are able to access training opportunities and patients based outside the main cities are able to access improved services.

Buy-in to the training from the Ministries of Health is essential in aligning priorities and identifying potential areas of support. Strong links with the hospitals the participants are based at is required, from the beginning of the programme, in order to build a clear picture of the patient impact of the training.

Conclusions

▲ Neurology clinical training, Kampala, Uganda, September 2017

Across Kenya, Tanzania, Uganda and Rwanda 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 East Africa through a unique training model.

With the demographic transition, and people increasingly surviving to older ages, there is a rapidly increasing burden of neurological diseases such as stroke, dementia and Parkinson's disease, while epilepsy rates are already much higher than in high-income countries. The neurology courses equipped participants with the knowledge to optimally manage these conditions within the resources available to them.

The METAF training model, with the curriculum design and delivery teams drawing expertise from both the RCP and East Africa, has guaranteed both a world-class approach and content while still ensuring contextual relevance. Having benefited over 5,000 healthcare workers across the region, the METAF programme has supported progress towards the 2030 Sustainable Development Goals (SDGs) – specifically recognising NCDs as a major challenge for sustainable development (Goal 3.4, reduce by 1/3 premature mortality from NCDs through prevention and treatment) and championing the use of partnerships and collaboration across countries and organisations to tackle challenges and to meet goals.[7]

Feedback from participants highlights that the programme has supported both individual and systemic improvements that benefit patient care and, ultimately, prevent deaths. From increased index of suspicion for cancer, improved history taking for neurological examinations, and strengthening doctor/patient communication skills and networks and referral pathways, advancing the education of physicians has had a direct impact on patient care.

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.

Acknowledgements

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