

Initial experiences following the launch of radiotherapy in a southeast African nation

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IMPACT STATEMENT

In July 2025, Malawi established its first public radiotherapy service, providing access to external beam radiotherapy for a population of more than 20 million people. This work captures the early operational phase of that transition, showing how a sustained international partnership, combining targeted on-site support with ongoing remote education, enabled clinical service delivery despite continued workforce and infrastructure limitations. By focusing on early patient mix, staffing realities, training needs, and system reliability after go-live, this experience highlights challenges that emerge only once clinical operations begin, beyond those encountered during commissioning. The observations emphasize the need for longitudinal training, staff retention, and practical contingency planning for imaging and treatment infrastructure, and offer lessons that may be relevant to other countries moving from radiotherapy program initiation toward durable, long-term service delivery.

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INTRODUCTION

Malawi, a low-income country in southeastern Africa with a population of more than 20 million, historically lacked access to public radiotherapy services. In July 2025, the country’s first public radiotherapy program became clinically operational at Kamuzu Central Hospital through a partnership between the Government of Malawi, the IAEA, and RAD-AID International. This work describes the early medical physics experience during the first seven months of clinical operation, with emphasis on case mix, workforce development, and operational challenges in a low-resource setting.

METHODS

Clinical activity and operational experience were reviewed for the first seven months following go-live. Data included patient volumes, treated disease sites, staffing and training activities, quality assurance workflows, and infrastructure-related disruptions. Program support was provided through an international collaboration coordinated by RAD-AID, including on-site visits by a medical physicist, dosimetrist, radiation therapist, and radiation oncologist to support commissioning, clinical launch, and hands-on training. These efforts were supplemented by ongoing remote education and mentorship to reinforce clinical workflows and build local capacity.

RESULTS

A total of 120 patients were treated during the initial seven months of operation. Cervical cancer accounted for the majority of cases (approximately 54%), followed by vulvar (10%), prostate (7%), and breast cancers (6%), reflecting the national cancer burden. Routine quality assurance procedures were implemented and maintained during clinical operation. Key challenges included limited availability and retention of trained personnel, particularly medical physicists and radiation therapists, as well as intermittent infrastructure disruptions, including periods of CT simulator downtime. Despite these constraints, external beam radiotherapy services were sustained. Preparations are underway to introduce brachytherapy in the coming months.

Disease Site	Patients (%)
Cervix	68 (53.97%)
Vulva	12 (9.52%)
Prostate	9 (7.14%)
Breast	8 (6.35%)
Penile	8 (6.35%)
Oesophagus	5 (3.97%)
Rectal	5 (3.97%)
Head and Neck	3 (2.38%)
Bladder	2 (1.59%)
Unknown primary	2 (1.59%)
Melanoma	2 (1.59%)
Lung	1 (0.79%)
Spleen	1 (0.79%)
Total	120 (100%)

CONCLUSIONS

Early operational experience demonstrates that public radiotherapy services can be delivered in a low-resource setting through sustained international partnership, while underscoring the importance of workforce development, training continuity, and infrastructure reliability. These lessons may inform other countries transitioning from program establishment to sustained radiotherapy delivery.

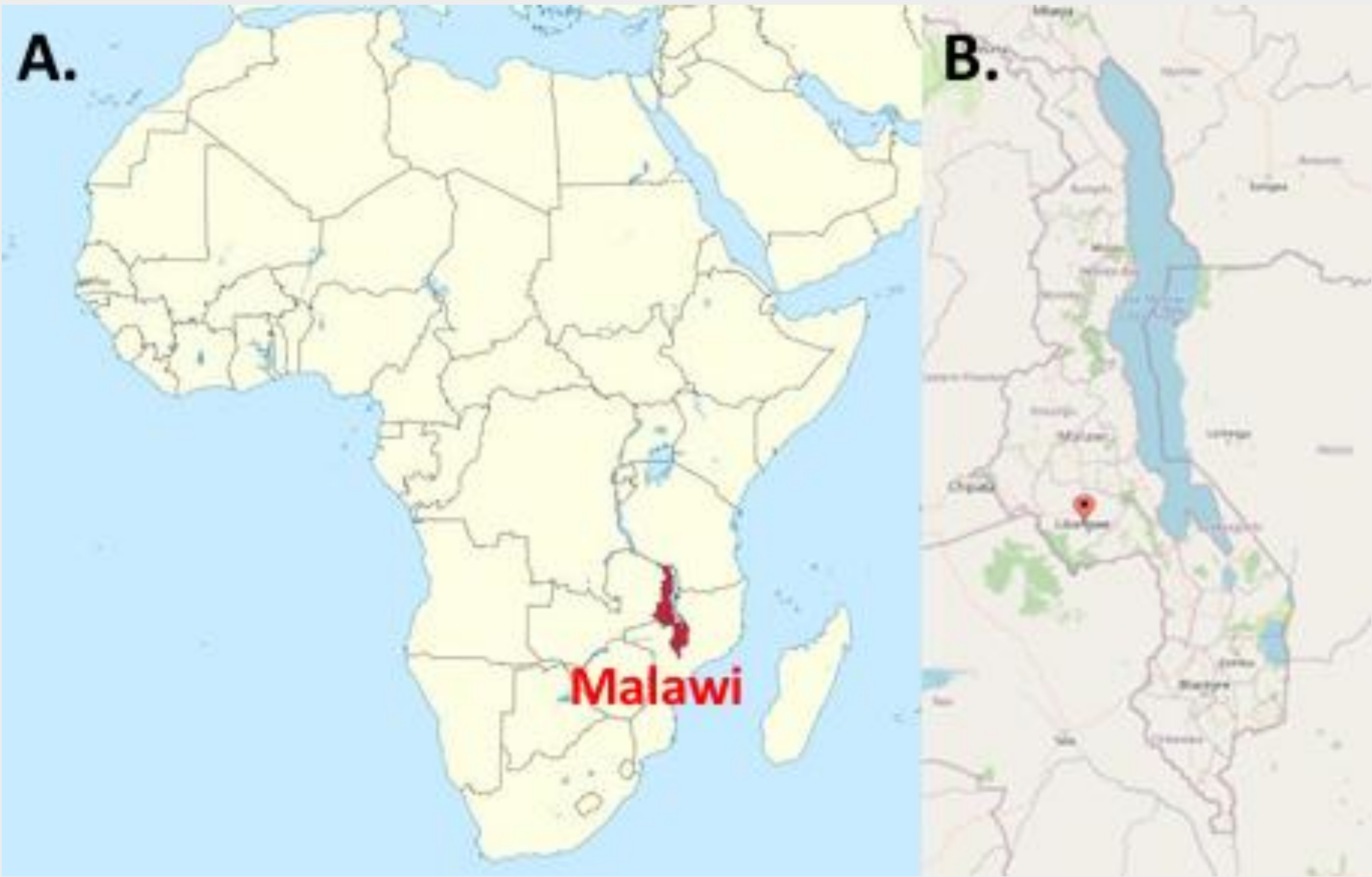


Figure 1. Geographic and Facility Overview - (A.) Map highlighting Malawi’s location within Africa. (B.) Map showing the location of the cancer center within Malawi. (C.) Photograph of a recently constructed corridor in the cancer center, illustrating ongoing infrastructure development to support radiotherapy services.



Figure 2. Program launch and clinical staff. (A) Opening ceremony marking the launch of Malawi’s first public radiotherapy service, attended by the President of Malawi and the Director General of the International Atomic Energy Agency. (B) Radiation therapy technologist staff at Kamuzu Central Hospital with one of the installed Elekta Synergy linear accelerators