

BUILDING CAPACITY FOR ESOPHAGEAL STENTING IN UGANDA:

National Training To Improve Workforce And Patient Outcomes



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BACKGROUND

Self-expanding metallic stents (SEMS) provide essential palliation for patients with dysphagia [1,2] from advanced esophageal cancer, yet access in Uganda is limited by supply chain gaps and a lack of trained personnel.

While SEMS are the global standard, few studies have examined the costs and feasibility of structured national stenting programs in low-resource countries.

To address this gap, Kyabirwa Surgical Center (KSC) and the African Esophageal Cancer Consortium (AfrECC) [3] developed a four-day intensive workshop to:

- **Train endoscopist-nurse teams** from across all regions of Uganda.
- **Establish a referral network** for patients with obstructing cancers.
- **Evaluate the economic and clinical impact** of decentralized specialty training.

Objective: To evaluate the feasibility, cost-effectiveness, and impact of a four-day endoscopic stent training course in Uganda on workforce capacity, patient care for esophageal cancer, and resource use in a limited-resource setting.

METHODS

1. Team Recruitment & Regional Reach

- **Participants:** Endoscopist-nurse teams with prior experience in diagnostic upper endoscopy were recruited from all four regions of Uganda.
- **National Representation:** Teams traveled from Gulu, Jinja, Mbarara, and Mulago to the Kyabirwa Surgical Center (KSC).

2. Patient Selection & Referral Network

- **Criteria:** Patients with unresectable esophageal cancer, significant dysphagia (Ogilvie Score ≥ 3), and fitness for endoscopy.
- **Logistics:** Through KSC's referral network, patients were identified and transported to KSC.

3. Workshop Infrastructure & Support

- **Technical Support:** Training utilized Olympus towers and Boston Scientific donated SEMS.
- **Comprehensive Coverage:** The program provided full support for patients, caregivers, and teams, including equipment, transport, meals, and lodging.
- **Data Collection:** Prospective recording of all costs, clinical outcomes, and trainee performance using a validated scoring system.

RESULTS

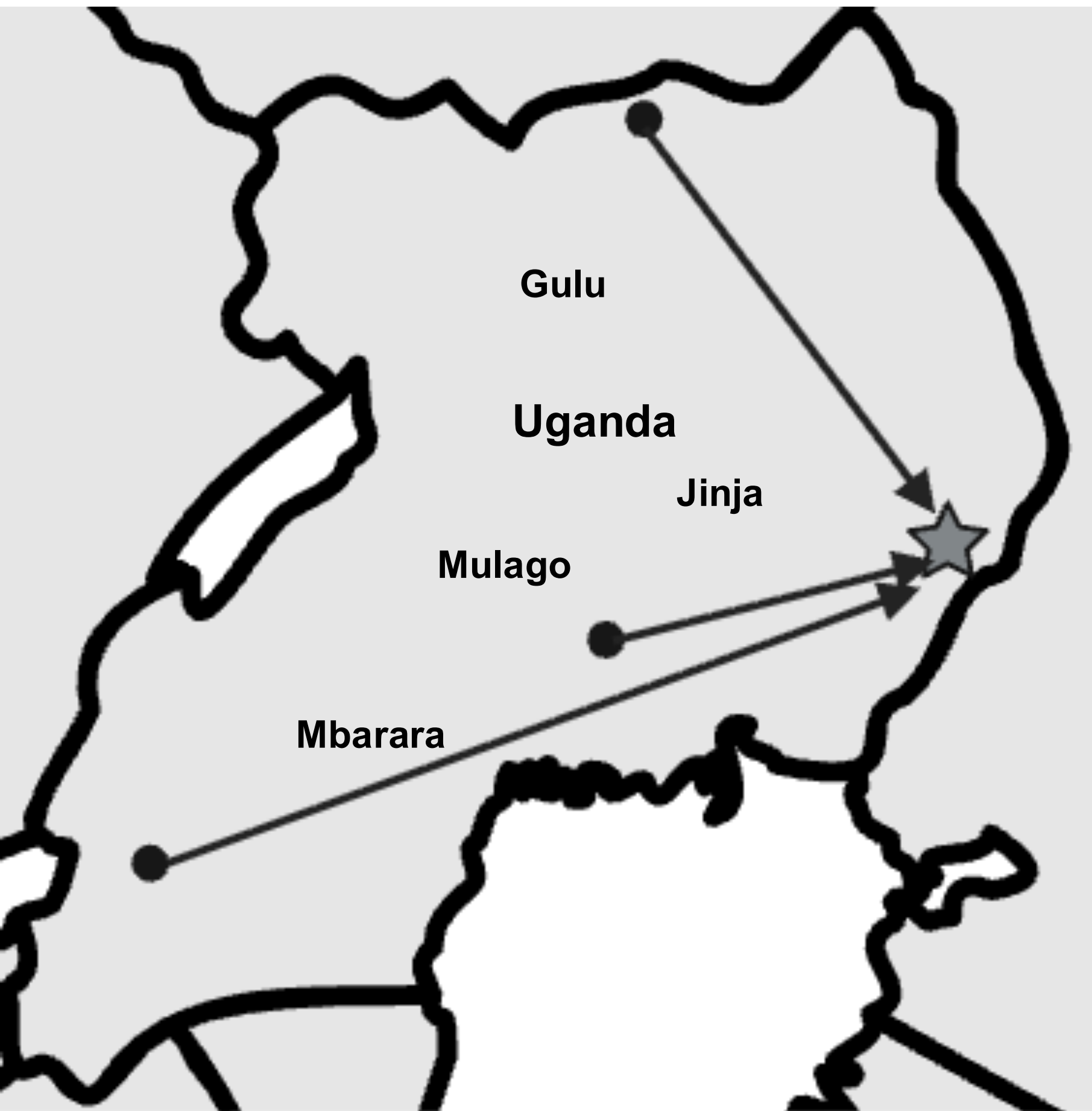


Figure 1. National Recruitment and Referral Network. Endoscopist-nurse teams and patients were recruited from all four regions of Uganda (North, East, South, Central). Arrows indicate the referral pathways from Gulu, Mbarara, and Mulago to the centralized training hub at Kyabirwa Surgical Center (KSC).

National Representation:

- 5 endoscopist-nurse teams recruited from all 4 regions of Uganda (North, East, South, Central).

The Travel Burden:

- **Teams:** Traveled a median of **473 km** to reach the KSC hub.
- **Patients:** 49 recruited; 35 traveled to KSC (median **375 km**; IQR 67.8–410).

Patient Profile:

- **Mean Age:** 61.6 ± 2.1 years.
- **Gender:** 80% Male.
- **Clinical Status:** 100% presented with significant dysphagia (**Ogilvie Score ≥ 3**).

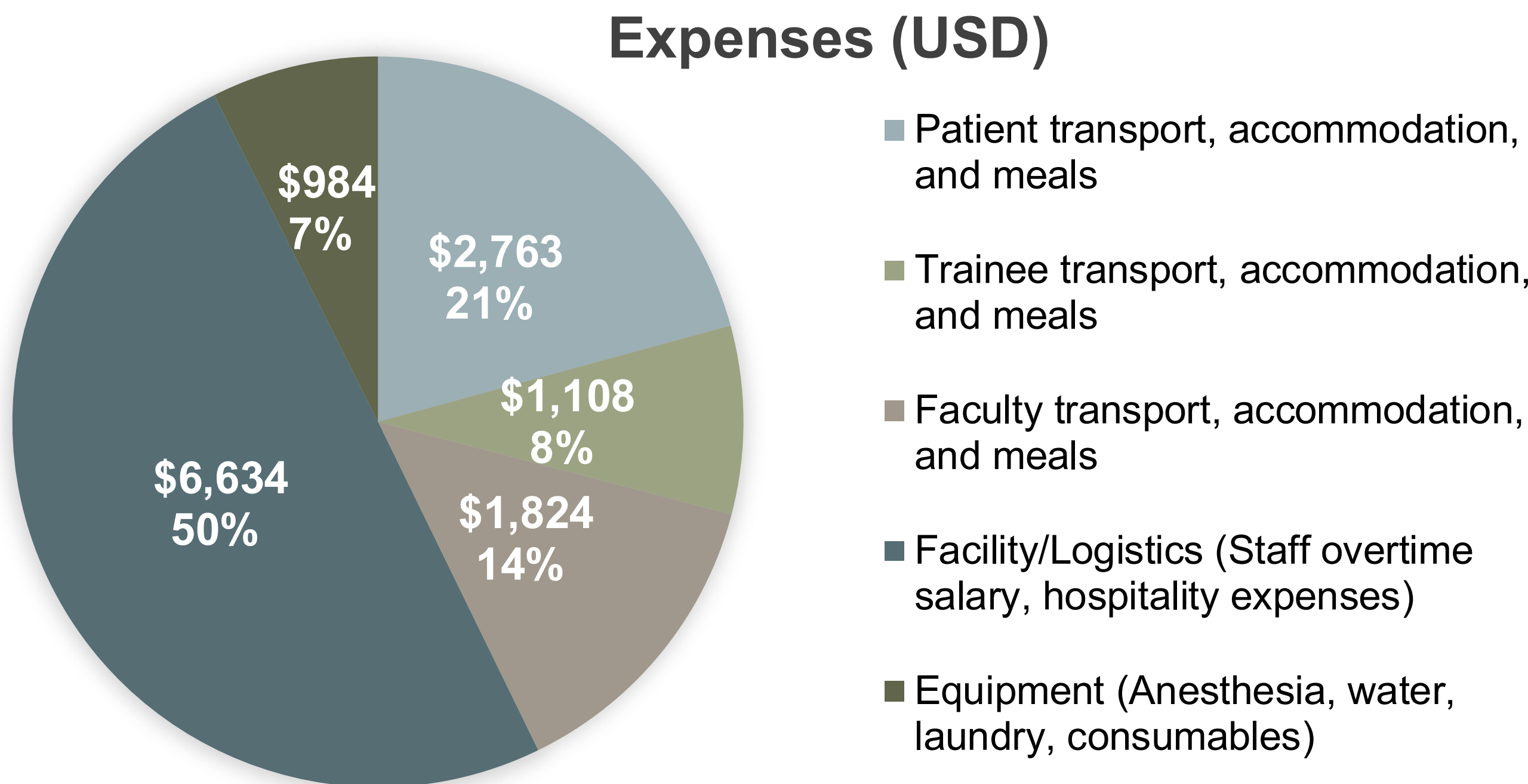
Clinical Success:

- SEMS were successfully placed in **26/35 (74%)** of patients who reached the hub.
- *Reasons for non-stenting:* Benign strictures, gastric tumors, or patient frailty.

Training Impact:

- 100% (5/5) of teams achieved **AfrECC certification** [4] via a validated scoring system.

Figure 2. Economic Analysis of a National Training Model. Total program cost (13,313) categorized by resource allocation. Despite high facility and logistical requirements for national recruitment, the model achieved a high value-to-cost ratio at 512 per patient treated and 2,663 per team certified.



Supply Chain Sustainability:

- 53 total SEMS utilized: 28 deployed and 25 distributed to trainees' home institutions for immediate regional use.

Economic Efficiency (Total Cost \$13,313):

- **\$512** per treated patient.
- **\$2,663** per team trained.

CONCLUSIONS

Scalable Capacity Building: Structured, short-term intensive training is a highly effective model for rapidly expanding the endoscopic workforce in low-resource settings [5].

Regional Impact: Centralizing training at a hub (KSC) successfully decentralized care, providing all four regions of Uganda with certified teams and immediate stent supply.

Economic Feasibility: At **512 per patient** and **2,663 per team**, this model demonstrates that specialty palliative interventions can be implemented cost-efficiently without compromising quality.

Clinical Success: 100% of participating teams achieved certification, directly increasing patient access to the global standard of care for malignant dysphagia.

Future Directions: Continued 90-day follow-up will evaluate long-term clinical benefits and serve as a blueprint for further regional expansion across East Africa.

Takeaway: The training model serves as a reproducible blueprint for esophageal cancer palliation in sub-Saharan Africa.

REFERENCES

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