

# Preventing HIV-linked meningitis deaths:

## DREAMM becomes real

Despite antiretroviral therapy **650,000** people die from HIV-related causes each year. Around **one in three** of these are from central nervous system infections (CNS), including meningitis. The **DREAMM** project (Driving REduced AIDS-associated Meningo-encephalitis Mortality) examined how to strengthen clinical and laboratory care in public hospitals in three African countries and **halved the number of deaths** from HIV-linked meningitis.

### Barriers to treatment and diagnosis

- People living with HIV in many low- and middle-income countries not being diagnosed with meningitis
- Inadequate access to essential tests and effective medicines
- Clinical trial results not being translated into routine care practices and procedures
- Weak health systems, particularly in public hospitals

### DREAMM aimed to improve the rapid diagnosis and targeted treatment of HIV-linked meningitis in routine care services within African public hospitals.

It drew on elements from health system engineering, education, social science, clinical mentorship and laboratory capacity building. Driven by African leaders and frontline healthcare workers, DREAMM developed a new, co-designed approach for resource-limited settings.



**Approach:** Iterative, three-phased, co-designed with local health leaders and hospital staff



**Aim:** To implement rapid diagnostic testing and ensure WHO meningitis treatment guidelines were followed



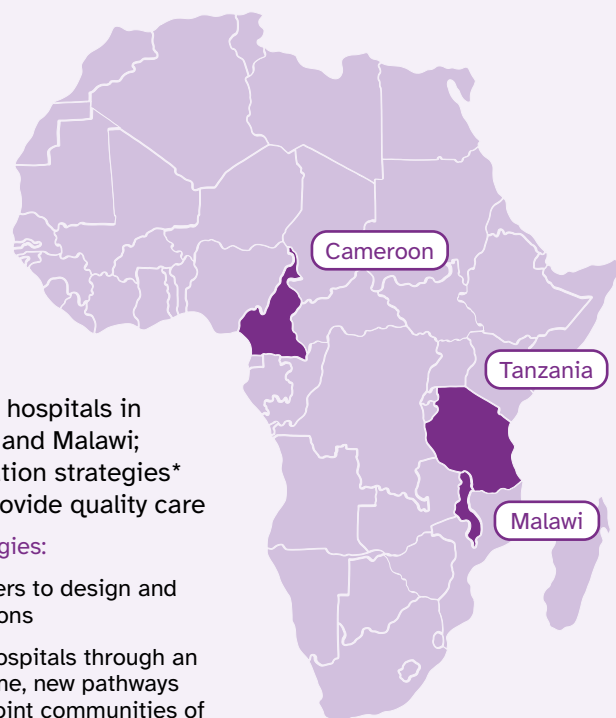
**Timescale:** New, co-designed procedures were put into practice at each site for around 10 months, between Jan 2018 and Mar 2021



**Location:** Five public hospitals in Cameroon, Tanzania, and Malawi; used two implementation strategies\* in each hospital to provide quality care

**\*Implementation strategies:**

- #1 Empower local leaders to design and deliver all interventions
- #2 Strengthen public hospitals through an education programme, new pathways for meningitis and joint communities of practice



### Main intervention:

Implementing a step-wise algorithm (or decision-making tool) for the rapid diagnosis and targeted treatment of HIV-linked meningitis.

### Key features:

- Using point-of-care rapid diagnostic tests (alongside traditional laboratory techniques)
- Targeted treatments in line with WHO recommended guidelines

## Research findings

- Deaths within two weeks of presenting to hospital:\*\*

49%

before  
DREAMM

24%

with  
DREAMM

\*\*among adults living with HIV admitted with a suspected first episode of CNS infection

- During the initial DREAMM observation phase, essential tests and medicines were lacking and prescribed treatments were largely empirical, leading to **poor outcomes**.
- Under local leadership, when essential tests and medicines were made freely available, the DREAMM approach **substantially reduced deaths** from HIV-linked meningitis.
- HIV-linked meningitis **varied geographically**. For example, the most common cause of CNS infection in:
  - Cameroon: cerebral toxoplasmosis (a parasitic brain infection)
  - Malawi and Tanzania: cryptococcal meningitis (a fungal infection)

## Recommendations



**Obtain additional qualitative and mortality data** on the DREAMM approach in ten public hospitals in five African low- and middle-income countries to inform scaling-up the DREAMM model of care.



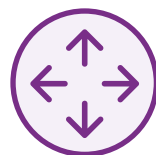
**Continue advocating for essential tests and medicines for CNS infections** through the Fight AIDS Coalition and End AIDS Action Group ([endaidsaction.org](https://endaidsaction.org)).



**Devise consolidated guidelines** for HIV-related CNS infection.



**Use DREAMM epidemiological data** (and advocate for active surveillance including mortality data) to inform HIV programmes, Ministries of Health, implementing partners and global funders about packages of tests and medicines for HIV-related CNS infection so treatments can be targeted to save lives.



**Strengthen and expand** global health networks of African health leaders to also include directors of public facilities.

For further information or to support the continuation of the project, please contact Dr Angela Loyse, DREAMM chief investigator, [aloyse@sgul.ac.uk](mailto:aloyse@sgul.ac.uk).

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Headline mortality results available at: Mfinanga, S., et al. (2023) Reduction in mortality from HIV-related central nervous system infections in routine care in Africa (DREAMM): A before- and after-implementation study. *Lancet HIV*.

Website: [dreamm.net](https://dreamm.net)

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