



CRYPTOCOCCAL MENINGITIS DASHBOARD

Of the 690,000 people who died of AIDS in 2019, at an average age of death of 35 years, over 100,000 probably died of cryptococcal meningitis.

With speedy diagnosis and treatment with combination amphotericin B and flucytosine, over 70% of these meningitis deaths could be avoided, and bring the death toll down from over 100,00 to ~30,000. About 75% of cases of cryptococcal meningitis occur in Africa. Before meningitis, the fungus *Cryptococcus* circulates in the blood and antigen is detectable; the delay between this phase and meningitis developing is usually ~3 weeks, in AIDS.

This dashboard shows how close sub-Saharan African countries are to implementing all key aspects of public health policy and clinical practice for minimizing deaths from cryptococcal meningitis.

GAFFI has been tracking antifungal drug availability by country for many years and this is [displayed online](#).

GAFFI has also conducted a comprehensive survey of fungal disease diagnostics across Africa. Lumbar puncture, cryptococcal antigen, microscopy and fungal culture are all critical to high quality care of patients with suspected meningitis. Imaging of the brain with MR scans is helpful for differential diagnosis.

The WHO has [published guidelines](#) for cryptococcal meningitis for many years, the last in 2018. Adoption of these guidelines in each country is important for procurement and public health planning. We have tracked this adoption process as well.

In May 2021, a [global strategy](#) to End Cryptococcal Meningitis Deaths by 2030 was launched, with a comprehensive guide to good practice at all levels of the health system.









GAFFI is indebted to its Ambassadors and many others for providing data and context to this dashboard.

December 2021



Cryptococcal meningitis dashboard 1/6

For more information visit: gaffi.org

	 South Africa	 Rwanda	 Zimbabwe	 Botswana	 Burkina Faso	 Mauritius	 Namibia	 Tanzania (United Republic of)	
Overall Country Score	10	9	8	7	7	7	7	7	
Diagnostics	Lumbar puncture	Performed often	Performed often	Performed often	Performed often	Performed often	Performed often	Performed often	
	CSF microscopy/India Ink	Performed often	Performed often	Performed often	Performed often	Performed often	Performed often	Performed occasionally	
	Cryptococcal antigen	Performed often	Performed often	Performed often	Performed often	Performed often	Performed often	Performed often	
	Fungal culture	Performed often	Performed often	Performed often	Performed often	Performed often	Performed occasionally	Performed rarely	
	CD4 count	A	B	A	A	A	B	A	
	MRI brain scanning	Performed often	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector	
Therapy	Fluconazole	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	
	Amphotericin B	R	R	R	R	R	R	R	
	Liposomal amphotericin B	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	
	Flucytosine	R	R	R	Drug not available	Drug not available	Drug not available	R	
Country CM guidelines (Year)	2016	2020	2016	2022	Unknown	Unknown	2019	2019	
Population	Population (M)	59.3	12.9	14.8	2.4	21.4	1.4	2.7	62.1
	AIDS/HIV prevalence (1000's)	7,800	220	1,300	370	97	14	210	1,700
	AIDS/HIV total (%)	13.2	1.7	8.8	15.4	0.5	1.0	7.8	2.7

Diagnostics

- Performed often
- Performed occasionally
- Performed rarely
- Not available in the public sector
- No data

Diagnostics / CD4 Only

A: Performed on almost all patients

B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy









- Drug available
- Availability uncertain
- Drug not available
- R: Registered for use

Guidelines

- Available
- Not available

Cryptococcal meningitis dashboard 2/6

For more information visit: gaffi.org

		 Cote d'Ivoire	 Mozambique	 Nigeria	 Eswatini	 Uganda	 Malawi	 Burundi	 Kenya
Overall Country Score		6	6	6	6	6	5	5	
Diagnostics	Lumbar puncture	Performed often	Performed often	Performed occasionally	Performed occasionally	Performed often	Performed occasionally	Performed often	
	CSF microscopy/India Ink	Performed often	Performed often	Performed occasionally	Performed occasionally	Performed often	Performed occasionally	Performed often	
	Cryptococcal antigen	Performed occasionally	Performed occasionally	Performed often	Performed often	Performed often	Performed occasionally	Performed often	
	Fungal culture	Performed often	Performed often	Performed often	Performed rarely	Performed often	Performed rarely	Performed rarely	Performed rarely
	CD4 count	A	Not available in the public sector	A	B	A	Not available in the public sector	A	B
	MRI brain scanning	Performed often	Performed often	Performed occasionally	Performed rarely	Performed occasionally	Performed rarely	Performed rarely	Performed often
Therapy	Fluconazole	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	
	Amphotericin B	R	R	R	R	R	R	R	R
	Liposomal amphotericin B	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	R	Drug not available	
	Flucytosine	Drug not available	Drug not available	Drug not available	Drug not available	R	Drug not available	Drug not available	
Country CM guidelines (Year)	Unknown	2014	2020	2015	2022	2022	Unknown	2018	
Population	Population (M)	28.1	30.9	219.5	1.1	44.7	20.3	12.2	54.7
	AIDS/HIV prevalence (1000's)	380	2,100	1,700	200	1,400	990	83	1,400
	AIDS/HIV total (%)	1.4	6.8	0.8	18.0	3.1	4.9	0.7	2.6

Diagnostics

- Performed often
- Performed occasionally
- Performed rarely
- Not available in the public sector
- No data

Diagnostics / CD4 Only

A: Performed on almost all patients

B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy

- Drug available
- Availability uncertain
- Drug not available
- R: Registered for use

Guidelines

- Available
- Not available

Cryptococcal meningitis dashboard 3/6

For more information visit: gaffi.org

	Zambia	Sierra Leone	Madagascar	Senegal	Benin	Cameroon	Ethiopia	Central African Republic	
Overall Country Score	5	4	4	3	3	3	3	3	
Diagnostics	Lumbar puncture	Performed often	Performed often	Performed often	Performed often	Performed occasionally	Performed occasionally	Performed often	
	CSF microscopy/India Ink	Performed often	Performed rarely	Performed rarely	Performed often	Performed occasionally	Performed occasionally	Performed often	
	Cryptococcal antigen	Performed often	Performed occasionally	Performed occasionally	Performed rarely	Performed rarely	Performed rarely	Performed rarely	
	Fungal culture	Performed rarely	Performed rarely	Performed often	Performed often	Performed occasionally	Performed rarely	Performed often	
	CD4 count	A	B	A	A	A	A	B	
	MRI brain scanning	Performed often	Performed rarely	Performed often	Performed often	Performed rarely	Performed rarely	Performed rarely	
Therapy	Fluconazole	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	
	Amphotericin B	R	R	R	R	R	R	R	
	Liposomal amphotericin B	Drug available	Drug not available	Drug not available	Drug not available	Drug not available	Drug available	Drug not available	
	Flucytosine	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	R	Drug not available	
Country CM guidelines (Year)	2018	2020	Not available	Unknown	Unknown	Not available	2008	Not available	
Population	Population (M)	19.1	6.8	27.5	16.1	13.3	28.5	110.9	5.4
	AIDS/HIV prevalence (1000's)	1,500	80	42	39	75	500	620	88
	AIDS/HIV total (%)	7.9	1.2	0.2	0.2	0.6	1.8	0.6	1.6

Diagnostics

- Performed often
- Performed occasionally
- Performed rarely
- Not available in the public sector
- No data

Diagnostics / CD4 Only

A: Performed on almost all patients

B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy










- Drug available
- Availability uncertain
- Drug not available
- R: Registered for use

Guidelines

- Available
- Not available

Cryptococcal meningitis dashboard 4/6

For more information visit: gaffi.org

	 Congo (DR of the)	 Congo (Republic of the)	 Eritrea	 Gambia	 Ghana	 Chad	 Lesotho	 Mali	 Mauritania	
Overall Country Score	3	3	3	3	3	3	3	3	3	
Diagnostics	Lumbar puncture	Performed often	Performed often	Performed often	Performed often	Performed often	No data	Performed often	Performed occasionally	
	CSF microscopy/India Ink	Performed rarely	Not available in the public sector	Performed often	Performed occasionally	Performed often	No data	Performed often	Performed rarely	
	Cryptococcal antigen	Performed rarely	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector	Performed occasionally	Not available in the public sector	Not available in the public sector	
	Fungal culture	Performed occasionally	Performed occasionally	Not available in the public sector	Performed occasionally	Performed occasionally	No data	Performed often	Performed rarely	
	CD4 count	B	A	A	A	A	No data	B	A	
	MRI brain scanning	Not available in the public sector	Performed rarely	Performed often	Performed rarely	Performed occasionally	No data	Performed rarely	Performed occasionally	
Therapy	Fluconazole	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	Drug available	
	Amphotericin B	R	R	R		R	R	Unknown	R	
	Liposomal amphotericin B									
	Flucytosine					R				
Country CM guidelines (Year)	2017	2016			2019	Unknown	2016	2013	2014	
Population	Population (M)	105	5.4	6.1	2.2	32.4	17.4	2.2	20.1	4.1
	AIDS/HIV prevalence (1000's)	510	110	13	27	350	110	280	110	8.5
	AIDS/HIV total (%)	0.5	2.0	0.2	1.2	1.1	0.6	12.7	0.5	0.2

Diagnostics

- Performed often
- Performed occasionally
- Performed rarely
- Not available in the public sector
- No data

Diagnostics / CD4 Only

A: Performed on almost all patients

B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy








- Drug available
- Availability uncertain
- Drug not available
- R: Registered for use

Guidelines

- Available
- Not available

Cryptococcal meningitis dashboard 5/6

For more information visit: gaffi.org

	 Niger	 Togo	 Gabon	 Guinea	 Liberia	 Puntland	 Somaliland		
Overall Country Score	3	3	2	2	2	2	2		
Diagnostics	Lumbar puncture	Performed often	Performed often	Performed rarely	Performed often	Performed occasionally	No data		
	CSF microscopy/India Ink	Performed often	Performed often	Performed occasionally	Performed often	Performed occasionally	No data		
	Cryptococcal antigen	Performed occasionally	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector	Not available in the public sector		
	Fungal culture	Performed often	Performed often	Performed rarely	Not available in the public sector	Not available in the public sector	Not available in the public sector		
	CD4 count	A	A	A	A	A	B		
	MRI brain scanning	Performed rarely	Performed occasionally	Performed occasionally	Performed often	Performed occasionally	Not available		
Therapy	Fluconazole	Drug availability uncertain	Drug availability uncertain	Drug availability uncertain	Drug availability uncertain	Drug availability uncertain			
	Amphotericin B	Drug not available	Drug not available	Drug not available	R	Drug not available			
	Liposomal amphotericin B	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	Not in Database		
	Flucytosine	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available	Drug not available		
Country CM guidelines (Year)	2009	2019	2014	?2013	2014	2015	2015		
Population	Population (M)	23.6	8.3	2.3	12.9	5.2	2.0	5.7	
	AIDS/HIV prevalence (1000's)	31	110	46	110	35	See Somalia	See Somalia	
	AIDS/HIV total (%)	0.1	1.3	2.0	0.9	0.7	See Somalia	See Somalia	

Diagnostics

- Performed often
- Performed occasionally
- Performed rarely
- Not available in the public sector
- No data

Diagnostics / CD4 Only

A: Performed on almost all patients

B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy







- Drug available
- Availability uncertain
- Drug not available
- R: Registered for use

Guidelines






- Available
- Not available

Cryptococcal meningitis dashboard 6/6

For more information visit: gaffi.org

	 Angola	 Equatorial Guinea	 Somalia	 South Sudan	 Guinea-Bissau	 Sudan			
Overall Country Score	1	1	1	1	1	1			
Diagnostics	Lumbar puncture								
	CSF microscopy/India Ink								
	Cryptococcal antigen								
	Fungal culture								
	CD4 count		B	B		A			
	MRI brain scanning								
Therapy	Fluconazole								
	Amphotericin B	R		R			R		
	Liposomal amphotericin B		Unknown						
	Flucytosine								
Country CM guidelines (Year)	2011		2015	2017		Unknown			
Population	Population (M)	33.6	0.9	12.1	11	2.0	46.8		
	AIDS/HIV prevalence (1000's)	340	68	9	180	37	49		
	AIDS/HIV total (%)	1.0	7.6	0.07	1.6	1.9	0.1		

Diagnostics

-  Performed often
-  Performed occasionally
-  Performed rarely
-  Not available in the public sector
-  No data




Diagnostics / CD4 Only

A: Performed on almost all patients



B: Performed occasionally criteria:

- Only new patients
- Only those with high viral load
- Those who are ill and/or admitted to hospital

Therapy

-  Drug available
-  Availability uncertain
-  Drug not available
- R:** Registered for use

Guidelines

-  Available
-  Not available