

EYE strategy | 2021 Highlights

**>48
million***

People protected via vaccination campaigns in Africa (preventive[†] & reactive[‡])

**3.8
million***

People protected via vaccination campaigns in Latin America & the Caribbean

**18
million****

Children protected via routine immunization in Africa

**3.8
million***

People protected by reactive vaccination in Africa

[†]Preventive mass vaccination campaigns (PMVCs) are the most efficient approach to rapidly increasing population immunity levels in high-risk areas and controlling the risk of yellow fever epidemics on a short-term basis. They target the at-risk populations older than nine months, provide shorter term but rapid increases in population immunity. [‡]Reactive campaigns are launched in response to outbreaks to protect the vulnerable population. *Numbers are best estimates based on data tracked throughout the year. **Estimate based on no. of doses shipped assuming 40% wastage rate. Actual figures might be lower in the pandemic context.

Vaccination Campaigns in Africa

Senegal protected

~704,000 people

through reactive vaccination campaigns.

Guinea protected

~140,000 people

through reactive vaccination campaigns.

Ghana protected

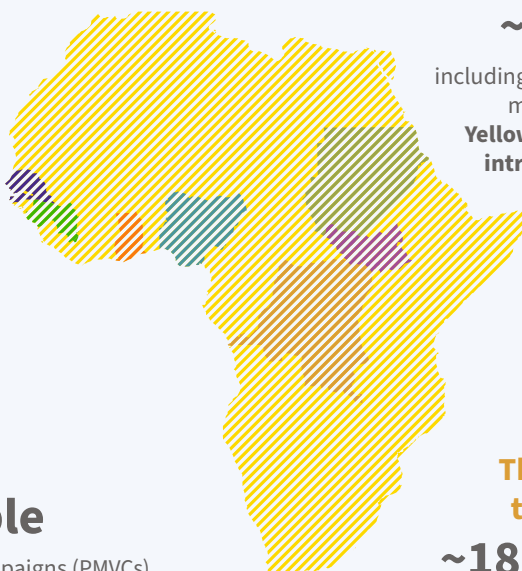
~339,000 people

through reactive vaccination campaigns.

Nigeria protected

~24.8 million people

through preventive mass vaccination campaigns (PMVCs). All campaigns were dual-or multi-antigen with either measles, meningitis A or oral polio vaccine. An **additional 2.5 million people** were protected through reactive vaccinations.



Sudan protected

~1 million people

including 77,000 refugees through preventive mass vaccination campaigns (PMVCs). Yellow fever (YF) vaccinations were also introduced into routine immunization in 2021.

South Sudan protected

~57,000 people

through pre-emptive vaccination campaigns^Δ.

The Democratic Republic of the Congo (DRC) protected

~18.9 million people

in 8 provinces through PMVCs. Campaigns also identified children who were zero-dose for measles.

^ΔPre-emptive campaigns. Within the context of response to an ongoing yellow fever outbreak, public health officers may launch pre-emptive vaccination campaigns in anticipation of imminent epidemic threat in areas that are not affected by yellow fever (i.e., where yellow fever cases have not been confirmed) but face heightened risk and vulnerability, and where population immunity is low.)

The Laboratory Technical Working Group validated a commercially available polymerase chain reaction (PCR) test kit for the yellow fever laboratory network. This is the first test of its kind to help speed up detection of cases. More info on [page 2](#).

The National Reference Laboratory (NRL) of the Nigeria Centre for Disease Control (NCDC) in Abuja was accredited for yellow fever molecular testing. The first national laboratory to be fully accredited for YF PCR activities. More info on [page 4](#).

Simulation exercise for input into the technical guidelines for preparedness, readiness & response planning for yellow fever outbreaks in urban settings. More info on [page 3](#).

Mobilized yellow fever task team in relation to the Immunization Agenda 2030. More info on [page 3](#).

Characterized risk to guide prevention, preparedness and readiness. First draft of a sub-national risk tool is being developed. More info on [page 2](#).

Regional implementation teams

Africa

- The regional EYE implementation team is now fully resourced.
- **First ever regional yellow fever annual country support meeting** hosted by the World Health Organization (WHO) AFRO.
- Publication of report: The resurgence of yellow fever outbreaks in Nigeria: a 2-year review 2017- 2019 [Can be viewed here](#).

Latin America and the Caribbean (LAC)

- Secured dedicated support in the region to:
 - commence roadmap for EYE implementation in LAC.
 - develop country profiles. Profiles of 9 of the 13 high-risk countries are currently underway.

Working groups

Risk analysis working group (RAWG)

- **First draft of the sub-national risk tool in development** by the RAWG. Tool to be finalized in 2022. It will provide a structured and evidence-informed approach to developing risk scores, using standardized variables to inform the prioritization of immunization campaigns within high-risk countries.
- **National risk assessment scores for yellow fever in Africa have been updated** for 2021. Scores are derived from the yellow fever National Risk Assessment Tool for Africa, which aims to objectively assess the longitudinal risk of yellow fever. The tool provides a structured and evidence-informed approach to developing national risk scores, using standardized variables to inform the prioritization of immunization activities among high-risk countries.

Demand and supply working group (DSWG)

- **Supply availability projections for 2022-24 have been developed** and approved. Shipment plans made by UNICEF SD in dialogue with countries, based on vaccine allocations for 2022 made by the Programme Management Group (PMG).
 - **Vaccine allocations for 2022*:**
 - 14.9 million doses (MDs) to the DRC.
 - 26.7 MDs to Nigeria.
 - 13.4 MDs to Uganda.
- *Allocation was based on (conservative) supply estimates, a comprehensive set of criteria and a decision-making framework and might be increased when the supply availability is confirmed. All details can be found [here](#).
- **A yellow fever preventive campaign calendar is in development** for 2021-26.
 - Annual vaccine delivery scenarios for preventive campaigns have been developed and approved.

Laboratory technical working group (LTWG)

- The LTWG has **validated a commercially available PCR test kit** from Altona Diagnostics for use in the yellow fever laboratory network. This is the **first test kit for the detection of yellow fever to be validated for use by the laboratory network**, and will enable faster confirmation of cases.
- Network coordination:
 - **New global yellow fever Laboratory Network Coordinator joined** the WHO yellow fever laboratory team.
 - **3 new NRLs:** Le Directeur Général du Laboratoire National de Santé Publique (LNSP), Republic of the Congo; Enugu & University of Benin labs, Nigeria.
- **No. of international shipments of YF samples** from national laboratories to YF regional reference laboratories (RRLs) via EYE.Ops (EYE Operations) **has nearly doubled from 30 in 2020 to 55 in 2021**.
- Shifted from WHO procurement to **UNICEF Supply Division (SD)** procurement of **serology reagent bundles** with bundles **delivered to all 21 high-risk countries in Africa**.
- Addition of new commercial assays to the list (if performance allows).

Vaccine delivery working group (VDWG)

- Analysis of yellow fever coverage in 2020 completed, including changes in coverage between 2019 and 2020, and **differential coverage between measles-containing-vaccine first dose (MCV1) and yellow fever vaccine (YFV)**. It included 21 countries in the Africa and 10 countries in the Americas that have introduced the YFV into routine immunization programmes.
- Survey conducted into existing YF policies and their implementation, and to identify barriers to YF vaccination.

EYE strategy 2021 Highlights

EYE Secretariat

- Commenced the **preparation of technical guidelines for preparedness, readiness and response planning for yellow fever outbreaks in urban settings**, due to be completed in early 2022. Simulation exercise completed for input into guidelines. This involved 40 participants, 4 partners and 7 countries.
- Mobilized **yellow fever task team in relation to the Immunization Agenda 2030**.
- A preliminary mapping of **private sector and extractive industry actors in Africa and LAC** (for eventual engagement) was completed.
- A **clinical management landscape analysis was completed**. This analysis highlighted considerable limitations in progress with moving candidate therapeutics forward to clinical evaluation, despite the existence of multiple reports supporting the medical need for a treatment of yellow fever over the past decades.
- **Finalized the EYE Strategy monitoring and evaluation (M&E) framework (2017-2026)**. This framework enables quantification, monitoring, evaluation, and reporting of progress made towards eliminating yellow fever epidemics globally, on a periodic and quarterly basis.
- Commenced the **development of the resource mobilization strategy**, due to be completed in early 2022.
- Developed the **EYE learning strategy**, which will be finalized in early 2022.
- 2021 **update of the EYE communication strategy**.
- **Updated EYE country profiles for all 27 high-risk countries in Africa**.
- Video on yellow fever vaccination campaigns in the DRC. Films can be viewed here: [Full Documentary](#), [Teaser](#).
- 10 episodes of the 'EYE on Yellow Fever' podcast series.

Capacity building workshops



Nigeria

Nigeria – 1-week workshop on YF Immunoglobulin M antibody-capture enzyme-linked immunosorbent assay (MAC-ELISA 72 hours) and data management (Epi Info software) hosted by Central Public Health Laboratory (CPHL), Lagos. Training involved the 6 Nigerian Laboratories (4 operational and 2 non-operational).

Cameroon – 3-day workshop on data management & confirmatory results interpretation targeting the 3 RRLs hosted by Centre Pasteur Cameroon.



Senegal

Guinea – 1-week training for initial set-up of YF MAC-ELISA 72h at the Laboratoire des fièvres hémorragiques de Guinée.

South Sudan – 1-week training for initial set-up of YF MAC-ELISA 72h at the National Public Health Laboratory of South Sudan.

Ethiopia – 1-week training for initial set-up of YF MAC-ELISA 72h at the Ethiopian Public Health Institute (EPHI).

Niger – 1-week training for initial set-up of YF MAC-ELISA 72h at Hôpital National de Niamey.

Senegal – 1-week & regional combined serology (MAC-ELISA 72h), molecular (Altona RT-PCR kit) & data management (Epi Info software) workshop for French-speaking African countries hosted by Institut Pasteur de Dakar.

Uganda – 1-week regional combined serology (MAC-ELISA 72h), molecular (Altona RT-PCR kit) & data management (Epi Info software) workshop for English-speaking African countries hosted by Uganda Virus Research Institute (UVRI).



Ethiopia

Response to acute events

1 In response to outbreaks in 2020, the following ICG-supported reactive vaccination campaigns were implemented in early 2021:

Senegal protected ~704,000 people;
Guinea protected ~140,000 people;
Ghana protected ~339,000 people;
Nigeria protected ~2.5million people.

2 A summary of 2021 yellow fever outbreaks, risk assessment and advice can be found in the WHO's Disease Outbreak News [here](#).

3 International Coordinating Group on Vaccine Provision (ICG) for YF requests have been approved to respond to these outbreaks since 23rd November 2021 (2 in Ghana; 1 in Chad). In total, these reactive campaigns will target over 1.9 million people in outbreak-affected areas.

Accreditations

✓ Laboratory on-site assessment reviews for serology accreditation:

- Institut National de Santé Publique (INSP), Mali
- Yusuf Dantsoho Memorial Hospital (YDMH), Nigeria
- Institut Pasteur de Côte d'Ivoire (IPCI)



✓ Laboratory on-site assessment reviews for molecular accreditation:

- Nigeria Center for Disease Control National Reference Laboratory (NCDC-NRL). This is the first time a national laboratory has been accredited for yellow fever diagnosis by real-time Reverse Transcription Polymerase Reaction (rtRT-PCR) in Africa. Serological testing still needs confirmation by a Regional Reference Laboratory (RRL).

Diagnostics



The Gavi Board has approved \$55, 000,000 for efforts by Gavi, the Vaccine Alliance to address gaps in diagnostic capacity through 2025. **More than \$8,000,000 is allocated for yellow fever diagnostics.**

Tools & products

A comprehensive set of **EYE datasets, visualizations and tools** developed in collaboration with WHO.

Availability to the EYE network of the **Immunization and Vaccine Preventable Disease (VPD) data portal** - global trends and total numbers in reported cases of VPDs up to 2020. These data can help monitor improvements and identify gaps for evaluation. (Owned by the WHO Department of Immunization Vaccines and Biologicals (IVB)).

Introduction of the **Go.Data yellow fever outbreak response tool** developed by the WHO in collaboration with Global Outbreak Alert and Response Network (GOARN) partners. It is a free platform to support and facilitate field-level outbreak response activities. All information on the outbreak response tool can be found [here](#).

African YF laboratory network dashboard completed and published. [Click here for dashboard](#)



Training

OPEN WHO training courses:

Currently available

- 'Introduction to yellow fever course', which is available in English/Kanuri and French (developed in 2016) - currently available. [Click here for training.](#)

Commenced development in 2021. Will be available by June 2022.

- The investigation and management of a yellow fever outbreak.
- Fundamentals for yellow fever surveillance and laboratory diagnostics.

Events

Webinar on international samples transportation processes & protocols for YF (EYE.Ops)

129 participants

June

EYE annual country support meeting, Africa

ICG annual meeting

September

5th EYE annual partners' meeting

Day 1 - maximum of 177 unique viewers, with a total of ~214 viewers/attendees + panelists.

Day 2 - maximum of 154 unique viewers with a total of ~190 viewers/attendees + panelists.

Day 3 - maximum of 142 unique viewers with a total of ~178 viewers/attendees + panelists.

October

Webinar: Go.Data outbreak response tool & EYE learning strategy / training

160 participants

Risk Analysis Working Group annual meeting

Laboratory Technical Working Group annual meeting

Two-day table-top simulation exercise on urban yellow fever outbreaks, followed by an after-action review (AAR).

40 participants; 4 partners; 7 countries

December



The full EYE Strategy 2017 to 2026 can be found [here](#).
Further information on yellow fever can be found [here](#).



A big thank you to all our partners and implementing countries for enabling our 2021 milestones.