**RAPID RISK ASSESSMENT, ACUTE EVENT OF POTENTIAL PUBLIC HEALTH CONCERN**

# Yellow Fever, Multi-country (African Region)

**Date and version of current assessment:** 12 February 2024, v4
**Date(s) and version(s) of previous assessment(s):**

## Overall risk and confidence

| Overall risk | |
|---|---|
| **Regional** | **Global** |
| **Moderate** | **Low** |

| Confidence in available information | |
|---|---|
| **Regional** | **Global** |
| Moderate | Moderate |

## Risk statement

The objective of this rapid risk assessment (RRA) is to assess the regional risk of the yellow fever (YF) outbreaks in the WHO African region. In December 2022, the version three of the RRA was carried out and the overall risk at the regional level was downgraded to moderate level due to the decrease of the number of reported cases in the eleven affected countries at that time (Cameroon, Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Ghana, Nigeria, Republic of the Congo, Kenya, Niger and Uganda) and the increasing population immunity with the implementation of preventive and reactive vaccination campaigns, with over 145 million people vaccinated in 14 countries during 2021-2023 supported through the EYE (Eliminate Yellow Fever Epidemics) Strategy.

This RRA aims to reassess the current regional risk of multiple ongoing YF signals and outbreaks, as measures to control the YF epidemic risk continue. This is occurring in a context of a resurgence of YF outbreaks in countries with history of preventive vaccination campaigns and of persisting immunity gaps, including capacities (e.g., technical, vaccine supply and vaccination campaigns, laboratory and operations, support and logistics capacity) to support the response, and to provide recommendations for a more effective and coordinated response.

Since the beginning of 2023 and as of 2 February 2024, ten countries in the WHO African region have reported confirmed YF cases (Cameroon, Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Guinea, Nigeria, Senegal, South Sudan, and Uganda). Of these, six countries (Cameroon, the Democratic Republic of the Congo, Guinea, Nigeria, Chad, and South Sudan), reported confirmed cases in the last quarter of 2023. Chad and Nigeria had both reported YF laboratory plaque reduction neutralization test (PRNT) positive samples that were pending final classification as of February 2024.

Other countries that reported confirmed cases of YF earlier in 2023 have initiated response planning activities, with campaigns expected to complete in 2024 in Central African Republic, Cameroon, and South Sudan.

Based on the current situation, the **risk at the regional level** is re-assessed and remains unchanged as **moderate** due to: **1/** a stable number of ongoing outbreaks; **2/** persistence of pockets of unimmunized populations (although considerable efforts have been made in recent years to protect the population through PMVC and reactive mass vaccination campaigns (RMVC) ; **3/** the detection of YF confirmed cases in urban areas, such as Douala city in Cameroon, which poses a significant risk of spread due to high population density, proximity and access to an international airport (with consequent risk of international spread), noting nevertheless the **risk mitigation** provided by a relatively high average vaccination coverage; **4/**suboptimal surveillance capacity and limited capacity for sample collection, packaging and transportation in Western Equatoria State, South Sudan, and other countries of the region, which could result in underestimation of the extent of the disease due to non-detection, delayed detection or false-negative diagnoses; **5/** continuous risk of spread, in addition to a risk of cross-border spread, if the YF outbreak in Western Equatoria State in South Sudan is not controlled, as it borders the Democratic Republic of the Congo and Central African Republic; **6/** case classification, investigation and response operations remain a challenge in affected countries; **7/** strained capacity to respond to multiple competing outbreaks (including measles, poliomyelitis, mpox, cholera, diphtheria, hepatitis E, Lassa fever,, dengue), food insecurity, security constraints and complex humanitarian contexts, and overstretched health

personnel ; **8/** high levels of inequity and preventable poverty, coupled with competing priorities in resource allocation, with limited understanding of the full impact of YF disease on social and economic development. The risk at the **global level** remains **low,** as no cases related to these current outbreaks have been reported outside of the African region; and as evidenced by the absence of the virus in Asia and Oceania, although the vector *A. aegypti* is already present in these geographical areas. The YF virus and its vector present a capacity for environmental adaptation that depends on complex biological, climatic, ecological, socio-economic, and political factors. There are favourable ecosystems for YF outside the African region, especially in neighbouring countries in the Eastern Mediterranean Region. Therefore, potential onward transmission through viraemic travellers and further spread in wider geographical areas due to the presence of the competent vector cannot be ruled out if not timely detected and if adequate preventive measures and public health strategies are not implemented.

## Risk questions

| Risk question | | Assessment | | Risk | Rationale |
|---|---|---|---|---|---|
| | | Likelihood | Consequences | | |
| Potential risk for human health? | Regional | Likely | Moderate | **High** | Yellow fever (YF) is a severe disease transmitted to humans by mosquitoes, resulting in approximately 200 000 cases and 32 000 to 51 000 deaths annually. The case fatality ratio (CFR) can be as high as 30% in severe cases, and no curative treatment exists. To effectively protect the population from YF, community immunity must exceed 80% in all at-risk areas (the YF herd immunity threshold), which has not been reached in the countries reporting suspected and confirmed cases.<br>The preliminary data for 2023 are reporting a high CFR (11%) and a sex ratio of 1.7 (M:F). The median age is 25 years, and 2/3 of the cases are >15 years, with 47% of the cases being young adults <40 years. The weak surveillance systems in many affected countries may contribute to the underreporting of cases and to increased mortality rates.<br>However, as part of the large-scale preventive efforts undertaken in 2023 under the global EYE strategy, close to 62 million people were vaccinated, of which 57.2 million in PMVCs in the Democratic Republic of the Congo, Nigeria, and Uganda, 686 405 in reactive campaigns in the Central African Republic (Mbaiki), Guinea (Dabola district and Dinguiraye), and Niger (Gazaoua), and ~4M from catch up in Sudan. Thus, the likely risk of YF amplification decreases with the increased vaccination coverage.<br>Nevertheless, the risk of YF disease is highest in hard-to-reach unprotected population groups such as nomads, refugees, internally displaced persons (IDPs), zero-dose communities, mobile forest workers, etc., and this is reflected in the YF cases reported (including in terms of age distribution).<br>In the current context, the risk is highest in South Sudan where the population is not protected (YF is not given as part of routine immunization and there has been no past PMVC). A reactive vaccination campaign planned for the end of Jan 2024 in five districts, including the one where the |

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| | Global | Likely | Minor | **Moderate** | index case (one confirmed) was reported, will decrease this risk.<br><br>The risk is high for unprotected residents of Douala city in Cameroon, as the urban transmission cycle of YF is associated with rapid spread, as the cycle only includes humans and mosquitoes. However, past PMVC in Cameroon means that part of the population is protected. Additionally, an International Coordinating Group on Vaccine Provision (ICG) request was under preparation in 2024 which will lead to a reactive vaccination campaign in Douala.<br><br>Resurgence of YF cases in Africa is not a new phenomenon and has not particularly increased in 2023. Root cause analyses were conducted in Guinea and Cameroon in the last quarter of 2023 to better understand the multiple factors underlying the resurgence of YF in countries with past PMVCs. Recommendations from these evaluations will feed into national plans to strengthen routine immunization and to develop national catch-up strategies.<br><br>Immunity gap analysis was conducted in Guinea, Cameroon, and Central African Republic in 2023 as preparation for the development of national catch-up vaccination plans which target unprotected population groups.<br><br>According to WHO/UNICEF Estimates of National Immunization Coverage (WUENIC), nationally the YF vaccination coverage in 2022 was suboptimal in all affected countries except Senegal: Cameroon (58%), Central African Republic (41%), Côte d'Ivoire (60%), the Democratic Republic of the Congo (55%), Guinea (40%), Nigeria (59%), Senegal (80%), and South Sudan (NA). These low levels of YF vaccination coverage indicate the presence of an underlying susceptible population at risk of YF and a risk of ongoing transmission. Mobile populations, insecurity, and population density in urban areas may exacerbate the risks.<br><br>In response to the multi-country YF outbreaks in 2021 and 2022, a coordinated response was organized that contributed to reducing the number of susceptible populations through RMVC, PMVC and ongoing efforts to strengthen routine immunization. Despite these commendable efforts, pockets of unimmunized populations remain. |

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| Risk of event spreading? | Regional | Likely | Minor | **Moderate** | Increased population immunity from PMVC and RMVC in recent years has helped to reduce the risk of YF spreading in most of the countries currently affected, except for South Sudan, where no confirmed cases were reported in recent months. However, the risk is not negligible, given the persistence of pockets of unvaccinated populations, population movements, and vector-friendly environments, among other factors.<br><br>Cross-border spread is a risk, especially between Cameroon, the Democratic Republic of the Congo, Central African Republic, and South Sudan. Ethiopian authorities are concerned by an increased risk in the sub-region, linked to the YF virus circulation identified in South Sudan and the movement of the refugee populationas the Ethiopian population is still largely unprotected. However, this concern and the long-lasting engagement of the EYE partnership have led to the agreement to develop a Gavi application toward nationwide vaccination.<br><br>Confirmed cases of YF in urban areas, such as Douala, Cameroon, pose a significant risk of spread due to high population density, absence of vector control activities, and presence of an international airport.<br><br>The positive lab sample under investigation in Lagos state, Nigeria, could pose a great risk if the case is confirmed, as the Lagos state population is not protected (PMVC is planned for 2024). |
| | Global | Unlikely | Minimal | **Low** | |
| Risk of insufficient control capacities with available resources? | Regional | Likely | Minor | **Moderate** | The WHO Regional Office for Africa and the EYE Strategy have supported African Region countries in preventing and responding to YF outbreaks. Capacities for case management, surveillance, investigation, case classification, etc., have been strengthened in recent years. However, some countries still face challenges related to delays in investigation, confirmation, and final classification, as well as delays in preparing ICG requests and responding to the outbreak. This is partly linked to insufficient human resources and competing priorities.<br><br>However, challenges and gaps remain in these areas, particularly in countries with suboptimal surveillance systems strained by multiple emergencies.<br><br>There are operational challenges in reaching the most vulnerable population groups. |
| | Global | Unlikely | Minor | **Low** | |

## Major actions recommended by the risk assessment team

| | Action | Timeframe |
|---|---|---|
| ☐ | Refer the event for review by IHR Emergency Committee for consideration as a PHEIC by DG (Art 12, IHR) | Choose an item. |
| ☐ | Immediate activation of ERF response mechanism (IMS) as urgent public health response is required | Immediate |
| ☐ | Recommend setting up of the regional grading call | Select. |
| ☐ | Immediate support to response (no grading recommended at this point in time) | Choose an item. |
| ☐ | Rapidly seek further information and repeat RRA (including field risk assessment) | Select. |
| ☒ | Support Member State to undertake preparedness measures | Continuous |
| ☒ | Continue to closely monitor | Continuous |
| ☐ | No further risk assessment required for this event, return to routine activities | Choose an item. |

| At the time of the RRA v.4 / January 2024 | |
|---|---|
| **Capacities** | **Vulnerabilities** |
| ***Preparedness and response***<br>• Capacity exists at a national level for all countries reporting yellow fever cases. Response plans have been developed and response measures initiated in affected countries | ***Preparedness and response***<br>• Affected countries are facing competing outbreaks |
| ***Surveillance and Laboratory***<br>• There are national reference laboratories with capacities for YF IgM detection in most of the affected countries and for PCR in some of them.<br>• Existence of regional reference laboratories for confirmatory testing,<br>• Laboratory capacities strengthened at national and regional levels by EYE strategy operations (prepositioning triple packaging, shipment, etc.). | ***Surveillance and Laboratory***<br>• Inadequate logistics and supplies for sample collection and transportation at the district levels in some countries.<br>• Weak sample collection, packaging and transportation capacity in some local areas affected.<br>• Turn-around time for diagnostics remains very long, and interpretation of results is complicated by vaccination<br>• Challenges exist in most countries for conducting timely field investigation of confirmed cases (including local surveys on vaccine coverage and entomological assessment) |
| ***Clinical management and infection prevention and control (IPC)***<br>• Capacities for clinical management and IPC exist at the national level in most of the affected countries. | ***Clinical management and IPC***<br>• Insufficient mosquito nets for managing YF cases. |
| ***Vaccination***<br>• All approved ICG requests have been funded and vaccines were received by countries. | ***Vaccination***<br>• ICG request delayed in all countries that have submitted requests in 2023.<br>• Delays in reactive vaccination response following YF case detection and arrival of vaccines.<br>• Insufficient understanding about ICG request process. |
| ***OSL and Partner coordination***<br>• Partners coordination mechanisms exist at national, regional and global levels.<br>• Close monitoring from EYE strategy partners. | ***OSL and Partner coordination***<br>• Lack of adequate resources to support field activities.<br>• insecurity in some of the affected and high-risk areas. |
| ***RCCE***<br>• Existing RCCE teams supporting YF response at the national level.<br>• Strong experience in outbreak management at the regional level. | ***RCCE***<br>• New RCCE for YF finalized but not yet disseminated (undergoing executive clearance) |

## Immediate actions

**WHO country offices to continue to support national authorities in:**

- Strengthening and maintaining high levels of routine yellow fever immunization in all high-risk settings.
- In-depth timely investigation of confirmed cases and enhanced surveillance for yellow fever and/or unusual clusters of cases of acute febrile jaundice or unusual illness.
- Rapid planning and implementation of response, including ICG request and vaccination when warranted.
- Working with clinical teams to ensure optimal care, including daytime bed netting of patients and vaccination of all caregivers.
- Conducting root cause analysis, a recovery plan and documentation of lessons learned, to inform policies and operations in other settings and implement immediate risk mitigation strategies.
- Adhering to IHR recommendations, including screening for vaccination status at points of entry and supporting cross-border coordination and information sharing for all acute yellow fever cases and outbreaks.

**AFRO will continue to support WCOs and Member States in the following ways:**

- Providing dedicated technical support for rapid response to priority countries facing YF outbreaks, including but not limited to epidemiologists, vaccination expertise, clinical management and logistical support as needed in each country including transportation of samples at the national level, further coordination and final case classification with response planning.
- Supporting the timely submission of ICG requests, including the necessary supporting documents (annexes, vaccination plan, budget, etc.) and further response planning and implementation.
- Developing a regional response plan with performance indicators and systematic monitoring of impact.
- Support the Member States in carrying out preparedness activities and ensuring timely root cause analysis after outbreak response.

**HQ**

**EYE Strategy partners and YF technical team to support in:**

- Providing direct country support to initiate or continue the response.
- Providing financial support and supporting resource mobilization.
- Providing technical support for investigation and strengthening of surveillance and immunization activities.
- Supporting the development of ICG requests.
- Providing technical resources for reference to support investigation, surveillance, laboratory diagnostics and comprehensive response, with advice on adaptation to country contexts.
- Support risk analysis to inform interventions.
- Continuing EYE operational support for international sample transport.

## Supporting information

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### Hazard assessment

Yellow fever (YF) is an acute viral disease transmitted to humans by the bites of infected mosquitoes, including *Aedes sp*. and *Haemogogus spp.* The disease can spread rapidly in urban and densely populated areas where *Aedes* mosquitoes, which are diurnal, are present. Although most people infected with YF do not experience severe symptoms, a subset may develop severe disease. After an incubation period of 3-6 days, affected individuals experience an "acute" phase of illness that includes fever, muscle aches (especially in the back), headache, chills, loss of appetite, and nausea and/or vomiting. This phase typically lasts 3-4 days. About 15% of cases progress to a second "toxic" phase within 24 hours of the initial remission. This phase may include high fever, jaundice (with or without abdominal pain and vomiting), bleeding, and kidney failure. Unfortunately, 50% of these cases result in death within 10 to 14 days.

Yellow fever is difficult to diagnose, especially during the early stages. More severe cases can be confused with severe malaria, leptospirosis, viral hepatitis (especially fulminant forms), other haemorrhagic fevers, infection with other flaviviruses (such as dengue) and poisoning.

Supportive care for dehydration, respiratory failure and fever is the only treatment for YF. Antibiotics may be used to treat associated bacterial infections. It is important to note that supportive care can improve outcomes for critically ill patients, but it is often unavailable in poorer areas.

Vaccination is the most effective way to prevent YF infection. Vaccination against YF provides lifelong protection. To prevent large-scale outbreaks in high-risk areas, a minimum of 80% coverage is recommended for all populations, including newcomers such as travelers, migrant workers, and nomadic populations. Vector control strategies are also important, especially in urban areas where *Aedes aegypti*-mediated amplification is more likely. Insecticide-treated bed nets are recommended for acutely ill patients to prevent further spread through mosquito bites of viraemic patients.

## Exposure assessment

Since the beginning of 2023 and as of 2 February 2024, **ten countries** in the WHO African region have reported confirmed yellow fever (YF) cases (Cameroon, Central African Republic, Chad, Côte d'Ivoire, the Democratic Republic of the Congo, Guinea, Nigeria, Senegal, South Sudan and Uganda). **Of these, six countries** (Cameroon, Chad, the Democratic Republic of the Congo, Guinea, Nigeria and South Sudan) reported YF confirmed cases in the last quarter of 2023, with two of these countries reporting initial positive laboratory results (Chad and Nigeria), that are pending further confirmation.

1. In **Cameroon**, three cases of YF confirmed by PCR were reported in the last quarter of 2023, in weeks 42 and 45. An additional three cases positive by plaque reduction neutralization test (PRNT) in week 44 were discarded. Probable and confirmed cases of YF were reported in Cameroon throughout 2023, starting from week 4.
2. In **Guinea**, two YF PCR-positive cases confirmed by IPD were reported on 23 December 2023, in a 7-year-old male from Koundara district, whose sample was collected on 6 December, and a 60-year-old female from Guiéckédou district, whose sample was collected on 15 December.
3. In the **Democratic Republic of the Congo,** 11 YF PRNT-positive cases (of which seven have unknown vaccination status, two were unvaccinated and two were vaccinated) were reported on 17 November 2023. Preliminary investigations were conducted on three of the 11 confirmed cases. Samples were collected between June and October 2023 from seven provinces (Bas-Uele, Haut-Uele, Kasaï, Kongo Central, Kinshasa, Kwango and Tshuapa). A total of 1577 suspected cases of YF were reported throughout the country, including 468 from the seven provinces which reported the 11 confirmed cases of YF.
4. In **South Sudan**, a confirmed case of YF was reported on 24 December 2023, following an investigation of suspected cases and deaths of viral hemorrhagic fever. The case was a 24-year-old male from Gangura Payam, Yambio County, Western Equatoria State, bordering the **Democratic Republic of the Congo** and the **Central African Republic**. He presented with generalized body weakness, headache, epigastric pain, fever, vomiting blood, and yellowish eyes. The sample collected tested positive for YF by PCR on 24 December 2023 at the National Public Health Laboratory and later at the Regional Reference Laboratory at the Uganda Virus Research Institute (UVRI). As of 28 January 2024, 38 YF cases, including 37 suspected cases and one confirmed case, have been reported from four counties in Western Equatoria state: Yambio (20), Nzara (seven), Tambura (eight), Ibba (two) and Ezo (one). Amongst the reported cases, five suspected YF deaths were recorded.
5. In **Nigeria**, one YF PRNT positive sample was reported in January 2024 from Lagos state, Nigeria in a 49-year-old male, residing in a rural area with poor sanitation, presented with symptoms of yellow conjunctiva and abdominal distension. He had no contact history with similar cases or exposure to wild animals. In-depth investigation is still ongoing.
6. **In Chad,** one YF PCR-positive result with negative serology was reported on 18 January 2024 in a patient sampled on 10 October 2023, from Léré district in the Mayo-Kebbi Ouest region. There is another YF sample with an equivocal result from a patient sampled on 1 September 2023 that is currently undergoing YF PRNT confirmatory test. Mayo-Kebbi Ouest Region is planned to be covered by PMVC in February 2024.

## Context assessment

The Global Strategy to Eliminate Yellow Fever Epidemics (EYE) has classified twenty-seven countries in Africa as high-risk countries. The potential risk of spread in urban areas such as Douala, Cameroon, is a real threat for further regional and international spread. Routine YF immunization coverage is suboptimal in most affected countries, and there are pockets of underserved populations that have not been reached by mass immunization efforts, contributing to some outbreaks. According to WUENIC, national YF vaccination coverage in 2022 was suboptimal in all affected countries except Senegal: Cameroon (58%), the Central African Republic (41%), Côte d'Ivoire (60%), the Democratic Republic of the Congo (55%),

Guinea (40%), Nigeria (59%), Senegal (80%), and South Sudan (NA). These low levels of YF vaccination coverage indicate the presence of an underlying susceptible population at risk of YF and a risk of ongoing transmission. There is a risk of further exposure and spread due to population movements, suboptimal vaccination coverage, and confirmed YF cases' proximity to urban districts. Delays in conducting previously planned PMVCs and competing epidemics (including measles, poliomyelitis, mpox, cholera, diphtheria, hepatitis E, Lassa fever, and dengue) that receive more attention in YF-affected countries are other risks that could lead to further YF transmission.

Increased population immunity through PMVC and RMVC in recent months has helped to reduce the risk of YF spread in most currently affected countries, except for South Sudan, where no confirmed cases have been reported recently.

**Table 2. Summary of reported ongoing yellow fever outbreaks as of 28 January 2023**

| N | Country | WUENIC Coverage | Context |
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| 1 | **Cameroon** | WUENIC revision 2022<br>58% | As of the end of 2023, a total of 32 confirmed cases, of which one were PCR-positive, were reported from 28 districts in the following eight regions: Sud-Ouest (two cases), Littoral (10 cases), Ouest (one case), Sud (three cases), Centre (three cases), Adamaoua (five cases), Nord (six cases), and Extrême-Nord (two cases). Four deaths were reported (CFR of 12.5%). The sex-ratio M:F is 2.7. Ages ranged from 2 to 72 years, with a median age of 25. Ten cases (31%) are children <15 years and 15 (47%) are adults <35 years old. The date of onset ranged from Feb to Nov 2023 with two peaks, in July, and in September.<br>Of the 10 cases reported from the Littoral region, six reside in urban districts of Douala city and did not have a history of travel in the 14 days before developing symptoms. All six Douala urban districts have suboptimal vaccination coverage estimates (children and adults), ranging from 42% to 79%.<br>Discussions with the Ministry of Health resulted in the selection of 13 districts prioritized for reactive immunization and a request submitted to ICG. Vector control activities are planned in Douala. |
| 2 | **Guinea** | WUENIC revision 2022<br>40% | Three YF PCR-positive cases confirmed by IPD were reported on 17 October in a 6-year-old female; and on 23 December 2023, in a 7-year-old boy from Koundara district, sampled on 6 December, and a 60-year-old woman from Guiéckédou district, sampled on 15 December. In-depth investigation reports are pending.<br>Reactive vaccination of Dinguiraye town was carried out in November (completed on 26 November 2023), with 44 090 people vaccinated. Vaccination has been conducted in Gueckedou health district, with 410 children less than 5 years old vaccinated in the village where a case was confirmed. An ICG request is pending from the MoH to vaccinate the remainder of the district's population. ICG application documents for the three districts were made and shared with AFRO for review prior to submission to EYE. |
| 3 | **Democratic Republic of the Congo** | WUENIC revision 2022<br>55% | In the Democratic Republic of the Congo, recent YF epidemics have been reported at increasingly short intervals in 2010, 2013, 2014, 2016, 2018 and 2021. A major epidemic was recorded in Kinshasa and in the provinces of Kwango and Kongo Central bordering Angola in 2016, and in 2018 in the provinces of Tshuapa and Bas Uele.<br>In 2021, YF epidemics were confirmed in the northern provinces of Ubangi (Abuzi ZS) and Bas-Uélé (Ango), in March and April 2021, respectively. A positive case has also been confirmed in Kasaï (ZS Bulape).<br>In 2022, up to week 33, 654 suspected cases of yellow fever, including 18 deaths, were reported. Among PRNT+ cases diagnosed at the Dakar regional laboratory in 2022, after classification four cases were confirmed (three cases in Kinshasa: ZS de Kinshasa, ZS de Kingasani and ZS de Mont Ngafula; as well as one case in Kongo Central province/ZS Nsonapangu) and eight probable cases.<br>Since 2010, in response to these epidemics, 15 million people have been vaccinated during reactive vaccination campaigns. In Kinshasa in 2016, fractionated doses of Anti Amaril Vaccine (AAV) were used on an emergency basis in the context of AAV shortage at the global level.<br>In terms of routine immunization, the yellow fever vaccine (AAV) was introduced into the Congolese child immunization schedule in 2003, and there has been an increase in AAV vaccination coverage over time but it remains below the impact coverage according to MICS 2018, i.e., 56.3%. No response activities were organized in that year due to the occurrence of other emergencies such as the Ebola virus disease, cholera and measles epidemics. The Democratic Republic of the Congo remains a country |

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| | | | at risk of YF epidemics due to its favourable ecosystem and the presence *Aedes* mosquitoes. Within the framework of the EYE strategy, the Democratic Republic of the Congo conducted YF preventive vaccination campaigns from 2021 to 2023, where 47.7 million persons were vaccinated against YF. |
| **4** | **South Sudan** | NA | The Ministry of Health officially declared a YF outbreak on 24 December 2023. A total of 38 cases, including one confirmed case, 37 suspected cases, and five deaths among suspected cases have been reported as of 28 January 2024. A total of 23 samples have been sent to UVRI, with one PRNT positive result out of 23 so far. On 28 January 2024, five additional samples were received at the National Public Health Laboratory in Juba and are pending testing. Request for 410 596 doses of YF vaccine were approved and shipped into the country by the ICG on 26 January 2024, to cover Yambio, Nzara, Tambura, Ezo and Ibba counties in Western Equatoria state. The target population is 381 346 (9 months to 60 years of age). The micro-plan is currently being developed. The country has requested technical assistance through GOARN. Additional requests for long-term surge support are expected through Standby Partner support via FCDO. The YF RCCE tool has been shared with South Sudan, and WHO communications colleagues are working with the country to develop a robust community engagement plan. The country has already started to raise awareness through mass media, church meetings and market gatherings. More than 75 000 posters and leaflets on YF are being sent from Juba to the affected state. Entomological surveillance has been intensified, with useful results in Yambio. |
| **5** | **Nigeria** | WUENIC 2022 revision<br><br>59% | In Nigeria, one YF PRNT positive sample was reported in January 2024 from Lagos state, in a 49-year-old male, residing in a rural area with poor sanitation. In-depth investigation is still ongoing. |
| **6** | **Chad** | WUENIC 2022 revision<br><br>42% | One PCR-positive result was reported on 18 January 2024 in a patient sampled on 10 Oct 2023, from Léré district in Mayo-Kebbi Ouest. There is an additional equivocal result undergoing PRNT, in a patient sampled on 1 Sep 2023. Mayo-Kebbi Ouest is planned to be covered by PMVC in February 2024. The country's ICG request for a national preventive vaccination campaign has been approved, and the mass campaign is scheduled for February 2024. However, the issue of vaccine supply, which will be insufficient given the influx of refugees from Sudan, remains unresolved. The last confirmed case previously reported was in October 2022. After the epidemic that began in week 38 of 2021, the country organized two phases of reactive mass vaccination campaigns in January 2022 (first phase) and July 2022 (second phase). |

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