

# SUDAN

## Cholera situation



Briefing Note  
02 January 2025

### SITUATION OVERVIEW

Cholera has a long history in Sudan, characterised by recurrent outbreaks driven by conflict, environmental factors, and inadequate WASH and health infrastructure. Cholera spreads primarily through contaminated water, with poor sanitation making many areas in Sudan highly susceptible. Severe forms of cholera can cause the sudden onset of acute watery diarrhoea, which can lead to rapid dehydration and death if left untreated (WHO 11/12/2023).

Significant past epidemics include the 2017 outbreak, when disrupted health services and poor sanitation led to approximately 700 deaths and 22,000 infections in two months, and the 2019–2020 outbreak, when heavy rains and flooding contaminated water supplies, leading to hundreds of cases across several states (AJ 21/08/2024; Radio Dabanga 13/06/2017; WHO 24/11/2019). Sudan has also faced outbreaks since the start of the war in April 2023 (MSF 11/09/2024).

In August 2024, a cholera outbreak was declared in Gedaref, Kassala, and River Nile states (MSF 11/09/2024). By 16 December, over 47,365 cases had been reported across 81 localities in 11 of Sudan's 18 states, with approximately 1,235 casualties and a case fatality rate of 2.6%, exceeding the WHO acceptable standard of under 1% (General Directorate of Health Emergencies & Epidemics Control accessed 18/12/2024; WHO 16/12/2022). As a result of challenges accessing and reporting data, however, the actual figures are likely higher (AJ 21/08/2024; KII 21/11/2024). Limited access and slowed community referrals to health facilities also contribute to underreporting (STC 05/09/2024). According to the General Directorate of Health Emergencies & Epidemics Control, by 16 December there was no cholera reporting from Blue Nile and Central, East, and West Darfur states as a result of lack of network, with limited network availability also affecting reporting in eight other states (General Directorate of Health Emergencies & Epidemics Control accessed 18/12/2024). Across the country reported cases have increased by 33.3% from October to November (OCHA 4/12/2024). By 16 December, the highest number of reported cases were in Aj Jazirah (11,179), Al Qadafir (9,745), Kassala (7,364), White Nile (6,646) and River Nile (5,824) (General Directorate of Health Emergencies & Epidemics Control accessed 18/12/2024). Gedaref also saw a 117% increase in cases from November to October; by 28 October, 5,770 cases were reported in the state (OCHA 4/12/2024; OCHA 01/11/2024).

The recent escalation of hostilities in Aj Jazirah and Sennar states has caused further displacement to Gedaref, Kassala, and Blue Nile states, straining the already limited response capacities in these regions (Camp Coordination and Camp Management Cluster 17/11/2024).

Overcrowded displacement sites and settlements without adequate water and sanitation facilities, clean water, and sanitation mean that IDP populations are particularly at risk (Health Cluster 13/11/2024).

Cholera has affected all age groups, with over 70% of cases occurring in infants and adults up to age 50. While deaths have occurred across all age ranges, individuals aged 70 and above have experienced the highest mortality rate (14.56%) closely followed by age 60-69 and 20-29 (12.09%). This higher mortality rate may be attributable to weakened immune systems, pre-existing conditions such as cardiovascular or kidney diseases, which worsen dehydration, and limited access to timely healthcare, which delays treatment. The data indicates no significant disparity between genders (General Directorate of Health Emergencies & Epidemics Control accessed 26/11/2024).

### KEY MESSAGES

- The cholera outbreak in Sudan is occurring amid war and a worsening humanitarian crisis, aggravating needs across the country. IDPs in overcrowded displacement sites with limited access to water, sanitation, and healthcare are at particularly high risk.
- Insufficient access to safe water and sanitation facilities, compounded by the effects of heavy rains and flooding, remain the primary drivers of the outbreak. Conflict-induced displacement has led to overcrowded living conditions and disrupted water and sanitation systems, creating fertile ground for the spread of cholera.
- Malnourished children, particularly those with severe acute malnutrition, are at significantly higher risk of severe outcomes from cholera. IDPs in displacement sites face compounded challenges as a result of inadequate healthcare and nutrition.
- The healthcare system is critically under resourced, with over 80% of health facilities non-operational as a result of the war. Attacks on medical infrastructure, supply chain disruptions, and a shortage of cholera treatment kits have hampered response efforts.
- Rapid deployment of resources, improved coordination among responders, and targeted interventions in high-risk areas – such as displacement sites – are critical. Addressing the outbreak requires bolstering WASH facilities and strengthening healthcare systems.
- While vaccination campaigns and emergency response measures provide temporary relief, sustainable solutions – including investment in water infrastructure, sanitation, and healthcare systems – are essential to preventing future outbreaks.

## ABOUT THIS REPORT

### Methodology

This analysis is based on a review of both public and non-public secondary sources, including documents produced by international organisations, UN agencies, research institutes, and local and international media, complemented by an interview with a health expert.

### Aim of the report

This report provides a comprehensive analysis of the current cholera outbreak in Sudan, examining its key drivers, impacts, and challenges to response efforts. The report aims to contribute to evidence-based decision-making, strengthening the collective response to the outbreak's impact and addressing its root causes.

### Information gaps

- There is a lack of up-to-date data on access to safe water.
- The latrine to user ratio and resultant gaps in WASH facilities are unclear.
- Information on the current capacity of cholera treatment centres is unavailable.
- Data on the availability of soap and other WASH facilities is unavailable.
- Data on IDP sites and the number of IDPs hosted in affected states is limited.

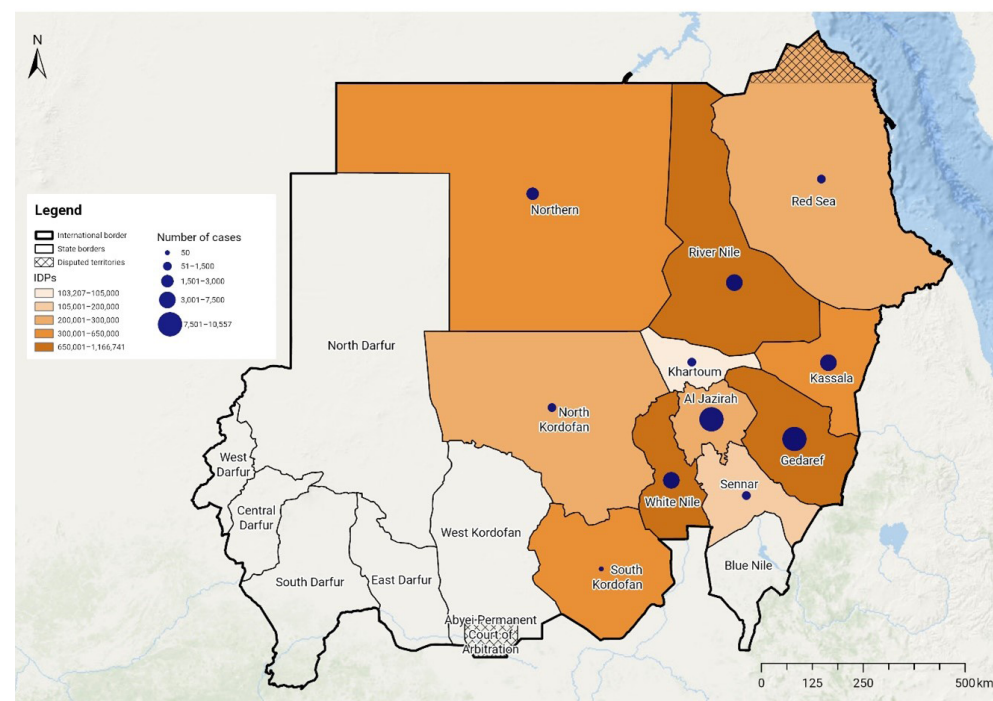
There is also limited data on how men and women may experience cholera differently. Cultural norms, mobility restrictions, and household roles may influence women's health-seeking behaviours, potentially delaying treatment. Gendered dynamics, such as men and women's access to or managing of cholera care, are underexplored.

## DRIVERS OF THE CRISIS

### Conflict-induced displacement

By 21 November 2024, over 11 million people had been displaced, 8.6 million of whom are estimated to be IDPs within Sudan, since the start of the war in April 2023 (IOM 26/11/2024). Cholera spreads rapidly in situations of displacement, as sanitation and hygiene deteriorate as displacement sites and informal settlements become overcrowded, with limited access to clean water and proper waste disposal. This creates an environment in which water sources are easily contaminated by faecal matter, cholera's primary transmission route.

Map 1. Cholera cases and IDP figures



Source: ACAPS using data from General Directorate of Health Emergencies & Epidemics Control (accessed 09/12/2024); UNHCR (accessed 09/12/2024)

Open defecation and improper sewage management further amplify the contamination of drinking water and food supplies, facilitating the rapid spread of bacteria (WHO 05/12/2024; El Bushra et al. 03/11/2024). This creates ideal conditions for cholera to thrive in war zones (AJ 21/08/2024). As the war intensifies, many people face repeated displacement, forcing them into overcrowded sites (NRC 22/11/2024).

Around 4.9 million IDPs, approximately 44% of the displaced population, are living in camps, displacement gathering sites, collective centres such as schools and public buildings, or informal makeshift settlements across Sudan's 18 states, while most of the remaining 56% live in host communities. Assessments reveal that these displacement sites are often severely overcrowded and fall below WHO minimum standards, with inadequate access to essential services leaving residents in precarious conditions (Camp Coordination and Camp Management Cluster 17/11/2024). Assessments indicate shortcomings in displacement sites, such as insufficient WASH facilities, restricted access to healthcare, and overstretched community resources resulting from the influx of IDPs. In Kassala, many sites lack adequate

latrines and, in Gedaref, host communities are struggling to accommodate 3,000 households arriving from the east of Aj Jazirah (Camp Coordination and Camp Management Cluster 17/11/2024). In Gedaref, where cholera cases continue to rise, most notably among IDPs, IDP sites are spread across numerous locations with differing population sizes, creating obstacles to humanitarian organisations' delivery of consistent and effective assistance, given the constraints on available resources (WASH Cluster unpublished).

The war has also triggered widespread displacement from urban centres such as Khartoum, where water infrastructure and access to safe water were comparatively better, to rural areas that lack essential facilities. This shift has led to overcrowding in under-resourced regions, where the absence of adequate water and sanitation infrastructure significantly heightens the risk of cholera outbreaks (KII 21/11/2024). The combination of increased population density and limited access to clean water creates a fertile environment for the disease to spread rapidly.

In Gedaref, there has been a resurgence, with nearly 400 cases and six deaths reported by 18 November, mostly among displaced individuals. By 6 November, approximately 14,000 people had been newly displaced from Aj Jazirah to Gedaref (DRC et al. 06/11/2024). The cholera resurgence in Gedaref is attributable to this growing influx of people fleeing the dire conditions of sheltering centres in eastern Aj Jazirah following Rapid Support Forces (RSF) attacks on the region, further overcrowding displacement sites in Gedaref and straining its fragile health system (Radio Dabanga 17/11/2024).

The complex interplay between cholera and nutritional status means that malnourished individuals face greater difficulty recovering from the disease. Cholera aggravates malnutrition by causing significant loss of vital nutrients, including sodium, potassium, zinc, chlorine, proteins, and carbohydrates. This loss not only further weakens the body but also creates a vicious cycle, as malnutrition complicates recovery and increases vulnerability to prolonged illness (WHO 09/08/2024).

Children are particularly vulnerable to the spread of cholera and other disease in overcrowded settings. In February 2024, reports suggested a sharp potential rise in child deaths at overcrowded and unsanitary displacement sites. The spread of disease under these conditions is especially dangerous for children with severe acute malnutrition, who are up to 10 times more likely to die from illness than healthier children, as malnourished children experience higher incidence and longer durations of diarrhoea (UNICEF 09/02/2024).

## Effect of war on the health system

The war has caused significant damage to infrastructure, including health facilities and water services, disrupting operations, weakening resilience, and reducing access to healthcare (Ali et al. 17/10/2024). Doctors and other healthcare workers have also been subject to killings, kidnappings, and other forms of violence (NPR 11/07/2024). Since the start of the war, there have been 465 reported incidents of violence against or obstruction of healthcare services, including at least 60 health workers arrested or detained in 26 separate cases (Insecurity Insight 04/11/2024). These arrests occurred at checkpoints, health facilities, in homes, or while travelling to provide care in remote areas (Insecurity Insight 04/11/2024). The war has also displaced healthcare personnel, leading to high staff turnover and leaving critical gaps in response capacity (Health Cluster unpublished).

Widespread attacks on and looting of medical facilities have severely disrupted the healthcare system's ability to respond to critical issues, including cholera (FT 30/10/2024; Radio Dabanga 12/08/2024; AJ 10/06/2024). In areas such as Aj Jazirah, Greater Darfur, and Khartoum, essential medical equipment and supplies have been stolen, including lifesaving machines and ambulances. Health information systems and supply networks have also been dismantled, leading to shortages, and supply transports have been targeted, leaving healthcare providers unable to coordinate effective responses (KII 21/11/2024; MSF 23/05/2023; PHR 22/05/2024; WHO accessed 12/12/2024). Such extensive damage has left already fragile communities even more vulnerable to the spread of cholera and other diseases.

The effect on infrastructure has rendered the healthcare system unable to provide timely prevention, diagnosis, treatment, and containment measures essential to controlling the spread of cholera (Diplomatic Courier 04/11/2024; Africa News 26/09/2024). The inability to treat other common diseases, such as malaria and acute respiratory infections, weakens community health and aggravates malnutrition, leaving individuals – especially children – more vulnerable to severe cholera outcomes (STC 05/09/2024).

## AVAILABILITY OF SAFE WATER AND SANITATION FACILITIES

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The lack of safe available drinking water has been one of the major drivers of the cholera crisis. Even before the war, approximately 17 million people were without access to basic drinking water supplies, leaving them vulnerable to disease, and around 24 million lacked proper sanitation facilities. In 2022, sanitation coverage had stalled, with over 10.5 million people still practising open defecation (UNICEF accessed 20/11/2024). Among IDP populations, many have scarce access to safe water, leaving these groups vulnerable to disease outbreaks (KII 21/11/2024; UNICEF 22/03/2017).

Prior to the war, less than half of households in Blue Nile and White Nile states had access to safe water, representing some of the worst coverage in the country. In Central Darfur and Kassala, significant geographical disparities meant that only some communities had access to improved water sources, leaving many without safe options. South Darfur and East Darfur also faced major water availability issues, with shortages affecting large parts of the population. West Kordofan struggled not only with insufficient water supply but also poor sanitation infrastructure, compounding public health challenges in the region. These challenges highlight the urgent need for targeted interventions to ensure equitable access to safe drinking water (Cha et al. 15/10/2021).

Sudan's water contamination is also a factor in its recurring cholera outbreaks. Destroyed infrastructure, well leakages, and flooding lead to the frequent pollution of water sources (KII 21/11/2024; UNICEF 21/03/2023). Saltwater intrusion (the movement of saline water into freshwater aquifers, making the water unsuitable for drinking or irrigation) from rising sea levels further aggravates the problem, compounding the scarcity of safe drinking water (UNICEF 21/03/2023; PSU accessed 09/12/2024).

## HEAVY RAINFALL AND FLOODING

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The 2024 rainy season, June–September, brought heavy rainfall and subsequent flooding, creating the ideal conditions for cholera to thrive and significantly accelerating its spread (UNICEF 17/09/2024; Health Policy Watch 23/08/2024; STC 05/09/2024). Floodwaters often mix with sewage, further contaminating water supplies. Cholera, historically prevalent in Sudan during the rainy season, saw a notable spike this year as communities struggled with the widespread impact of flooding on sanitation and water safety (AJ 21/08/2024).

By end of August, heavy rains and flooding across the country had affected an estimated 317,000 people, with over 118,000 displaced from their homes. Nearly 27,000 houses had been completely destroyed, while another 31,240 homes and thousands of latrines sustained damage (OCHA 25/08/2024). Widespread disruptions to housing and sanitation infrastructure further compromised access to safe water and proper hygiene, significantly heightening the risk of cholera outbreaks. In North Darfur state in September, heavy rains and flooding forced over 4,000 people to flee displacement camps, including Zamzam camp, where Famine (IPC Phase 5) levels of food insecurity has been reported (IPC 22/07/2024; UNICEF 01/08/2024). The floods destroyed around 900 tents and washed away latrines, leaving residents without basic shelter and sanitation, increasing the risk of cholera (STC 05/09/2024).

In rural, underdeveloped areas, including areas in Blue Nile, Kassala, and White Nile states where flooding is a major contributor to the spread of cholera, residents are forced to walk or wade through floodwaters, significantly increasing exposure to waterborne diseases, including cholera (Mark 10/10/2019; Nile Basin Initiative 25/05/2023).

## HEALTHCARE AND RESPONSE CAPACITY

Cholera presents an additional challenge to Sudan's crisis and overall humanitarian response, further straining a health system already overwhelmed by rising child malnutrition, war casualties, and frequent cases of preventable diseases (MSF 10/09/2024). The cholera outbreak has also forced a reprioritisation of medical resources, with a crucial portion being redirected to combat the epidemic. This shift has come at the expense of other critical health needs, leading to the neglect of diseases such as malaria and dengue fever, which continue to pose significant health threats (KII 21/11/2024).

Significant gaps in healthcare facilities have hindered response efforts. Many health facilities in conflict-affected regions are no longer functional or severely understaffed because of the war (WHO 24/09/2024). Critical shortages of cholera kits and rehydration solutions have also raised concerns, as health responders struggle to maintain adequate supply (KII 21/11/2024).

There is an urgent need to establish more isolation centres, particularly in high-risk areas, to contain the spread of the disease (Radio Dabanga 17/11/2024). Enhancing the epidemic-management capacity of rapid response teams and training specialists is vital to strengthening immediate outbreak control efforts.

War-induced access challenges further hamper the delivery of medical supplies and personnel to affected areas, delaying essential care and limiting the implementation of public health interventions. Security concerns in conflict-affected regions, such as Sennar and Greater Kordofan, pose major obstacles, with the dynamic situation limiting humanitarian workers' ability to deliver supplies and deploy personnel. Travel restrictions for aid personnel and delays in the issuance of approval for cargo movement, particularly in RSF-controlled areas (e.g. parts of Khartoum and Aj Jazirah state), further constrain movement, delaying critical care (NRC 03/08/2024; HRW 15/03/2024). These challenges are compounded by logistical issues, such as poor road infrastructure and operational disruptions caused by heavy rains and flooding, impeding the transportation of essential supplies and equipment to affected areas (OCHA 07/07/2024; EC 21/10/2024; Health Cluster unpublished).

Surveillance efforts have also been hampered by poor internet and network connectivity in regions such as Greater Darfur and Greater Kordofan, restricting the expansion of electronic systems (such as the Early Warning Alert and Response System) vital to tracking and managing the outbreak (Health Cluster unpublished).

Hampered surveillance is attributable to security challenges and restricted access, which have severely disrupted vaccine delivery and routine immunisation efforts (UNICEF 17/09/2024). It is important to understand, however, that vaccines are effective at providing temporary protection against cholera, but are not a permanent solution. While vaccines help prevent infection during outbreaks, they are primarily intended to buy time to address the underlying causes of cholera, such as improving water quality and sanitation (SAPA 15/09/2024).

Better coordination among responders is also essential to avoid the duplication of efforts and ensure resources are directed towards those most in need, such as in IDP sites and informal settlements. There have been challenges, however, stemming from miscommunication between decision makers and field teams (the reasons for which are unclear), creating obstacles to effective coordination and resource allocation (UN News 23/08/2024). This lack of alignment has hindered the timely delivery of aid and response efforts. By addressing these gaps and building a more robust, well-coordinated response system, the capacity to manage future outbreaks and improve health outcomes can be significantly enhanced (KII 21/11/2024).