Sudan Conflict

Date: 01 September 2024

Public Health Situation Analysis (PHSA)

This is the second updated WHO PHSA for Sudan, covering April-August 2024.

Typologies of emergency	Main health threats	WHO grade	Security level (UNDSS)	INFORM risk (rank)
Conflict Food security Displacement Epidemics	• Trauma and injury • Malnutrition • Measles • Cholera • Malaria • Dengue • Floods • Non-communicable Diseases • Mental health	**G3**	**High (5/6):** Khartoum **Substantial (4/6):** North Kordofan, Northern, River Nile, Port Sudan (Red Sea), Kassala, Gedaref, Al Jazirah, White Nile, Sennar, North Darfur, Central Darfur, East Darfur, South Kordofan, West Kordofan, South Darfur, West Darfur. **Moderate (3/6):** Blue Nile	**INFORM Risk 2024 (0-10):** 7.3 (Very High) **Global Ranking 2024 (1-191 countries):** 8

SUMMARY OF CRISIS AND KEY FINDINGS

Over 500 days have passed since the escalation of the conflict in Sudan. Humanitarian needs across Sudan are at record highs, with 24.8 million people, or every second person, needing humanitarian assistance in 2024.[1] This is nine million more than in 2023.[2] People have been forced to flee their homes due to the dire humanitarian situation and the destruction of essential infrastructure, such as roads, hospitals, medical facilities, and schools, as well as power, water, and communications services. [3]

According to humanitarian partners, more than 18 800 people have been killed and over 33 000 injured since the conflict broke out in April 2023.[4] The true toll is likely far greater. Most civilian deaths have been the result of the use of heavy weaponry in densely populated areas, with women and children constituting a significant proportion of the casualties reported.[5]

An estimated 10.7 million people (2.1 million families) are now internally displaced in Sudan.[6] More than half of those internally displaced – 55% – are children under the age of 18 years and they have endured more than a year of separation, human rights violations, trauma, violence, and lack of access to basic services.[7]

Sudan's people are already struggling to access the lifesaving care they need. While half of the population need humanitarian assistance, nearly 15 million people require urgent health assistance for their survival.[8] As of June 2024, about 80% of hospitals in the most conflict-affected areas and 45% of health facilities in five states are not functional, and the remaining ones are overwhelmed with people seeking care.[9] Though healthcare should never be a target of war, attacks on healthcare are ongoing. Since the war erupted in April 2023, over 100 attacks on healthcare have been verified, resulting in 183 deaths and 125 injuries.[10]

Disease outbreaks are increasing in the face of disruptions of basic public health services, including vaccination, disease surveillance, functions of public health laboratories and rapid response teams. [11] Outbreaks, including cholera, measles, malaria, poliovirus type 2 (cVDPV2) and dengue fever, are ongoing in several states.[12] Sudan is home to 42% of the total zero-dose children in the WHO Eastern Mediterranean Region.[13] In addition, insecurity, displacement, limited access to medicines, medical supplies, electricity, and water continue to pose enormous challenges to delivering health care across the country.[14]

Sudan is also facing a hunger catastrophe at a scale not seen since the Darfur crisis in the early 2000s, with the most severe conditions found in areas heavily affected by fighting and where conflict-displaced people have congregated. [15] Deaths due to malnutrition-related medical complications occur increasingly regularly.[16] Camp leaders in Zalingei, Central Darfur, informed a UN team visiting in July 2024 that some internally displaced people survive on tree leaves, grain husks, and ground nut remnants.[17] Governments from 15 nations, including the United Arab Emirates, Jordan, and Nigeria, united in a declaration expressing deep concern over the escalating food security crisis in Sudan, concluding that "after fourteen months of conflict, Sudan is facing the worst levels of acute food insecurity ever recorded in the country."[18]

A stark and rapid deterioration of the food security situation has been reported since the last Public Health Situation Analysis, with 54% of the population (25.6 million) in the country is classified as IPC 3 or above. This includes 755 000 people (2% of the population) categorized as IPC 5 (Catastrophe). [19] Furthermore, famine conditions are confirmed to be prevalent in parts of North Darfur, notably the Zamzam IDP camp, south of El Fasher. [20]

On top of these emergencies, Sudan has not been exempted from effects of climate change, such as widespread flooding. Between 1 June and 26 August 2024, Sudan experienced 77 incidents of heavy rains and flooding, leading to multiple episodes of sudden displacement across the country. Approximately 136 455 individuals (27 291 households) have been newly displaced across 14 states. The floods have caused partial or total destruction of about 8932 structures. Notably, around 47% of those displaced by the floods were already displaced due to ongoing conflict.[21]

Delivering humanitarian aid, including essential health kits, to address acute need remains challenging due to limited access to hard-to-reach areas through the Adre border in Chad. The limited access, coupled with an ongoing conflict, rainy season and flood and subsequent population movement make it difficult to address the risks covered in this Public Health Situation Analysis.

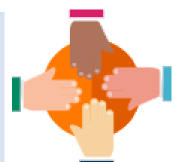
People Denied Access in Hard-to-Reach Areas (June 2024)

NORTHERN
Dongola
RIVER NILE
RED SEA
Port Sudan
Red Sea
Ad Damar
NORTH DARFUR
Khartoum
KHARTOUM
KASSALA
Kassala
NORTH KORDOFAN
AJ JAZIRAH
Wad Madani
Gedaref
GEDAREF
WEST DARFUR
Ag Geneina
Al Fasher
El Obeid
WHITE NILE
Rabak
Sinja
SENNAR
Zalingi
CENTRAL DARFUR
Nyala
WEST KORDOFAN
El Fula
Ed Damazine
BLUE NILE
Ad Du'ayn
SOUTH DARFUR
EAST DARFUR
Kadugli
SOUTH KORDOFAN
Abyei PCA

LEGEND
Country capital
State capital
Primary route
Alternative route
Primary road
People denied in hard-to-reach araes
People could benefit
370,000
250,000
100,000
100

Figure 1- People Denied Access in Hard-to-Reach Areas (June 2024) [22]

HUMANITARIAN PROFILE



PEOPLE IN NEED (PiN) 2024	HEALTH NEEDS 2024	DISPLACEMENT SINCE APRIL 2023	FATALITIES SINCE APRIL 2023
PiN: 24.8 million[23] **Target**: 14.7 million[24]	**Needs:** 14.7 million people require urgent health assistance[25] **Target:** 4.9 million[26]	**Total displacement**: 12.7 million (10.7 million IDPs and 2.2 million in neighbouring countries)[27]	**Deaths:** 18 800[28] **Injuries**: 33 000[29]

Humanitarian Response Plan (HRP): The 2024 Sudan Humanitarian Needs and Response Plan (HNRP) requires US$2.7 billion to provide life-saving multi-cluster and protection assistance to 14.7 million people across Sudan. As of 29 July 2024, the appeal is 32% funded, with $859.3 million received.[30]

Despite limited funding and a challenging operating environment, humanitarian partners have reached over 7.1 million people with some form of humanitarian assistance between January and May 2024.[31]

Conflict and Displacement: An estimated 10.7 million people (2.1 million families) are now internally displaced in Sudan.[32] The majority of those internally displaced – 55% – are children under the age of 18 years. Many of the displaced have endured more than a year of separation, human rights violations, trauma, violence, and lack of access to basic services. The overall number of internally displaced people includes an estimated 7.9 million people who fled their homes since the start of the conflict between the Sudanese Armed Forces (SAF) and the Rapid Support Forces (RSF) on 15 April 2023.[33]

Initially, displacement was concentrated in Darfur and Kordofan states but has now spread across all 18 states. A total of 36% of all IDPs (3.7 million people) have originated from Khartoum, whose nature is different from the 2003-2023 period when most IDPs came from rural areas and lived in camps.[34] Moreover, 27% of internally displaced persons (IDPs) who were initially displaced prior to the onset of conflict were displaced again after 15 April 2023. The country now hosts approximately 14% of the global IDP caseload, that is approximately one in seven IDPs worldwide are Sudanese.[35]

Additionally, approximately 2.1 million refugees have reportedly fled the country since 15 April 2023. UNHCR states that nearly 1.9 million of these individuals have crossed into the Central African Republic (CAR), Chad, Egypt, Ethiopia, South Sudan, and Libya.[36]

Sudan continues to welcome refugees and asylum-seekers, despite the conflict extending into its second year. By the end of March 2024, some 10 000 people had arrived in Sudan since the start of the conflict.[37] Sudan continues to host a substantial number of refugees, totalling 909 325 as of June 2024. Most of these refugees are from South Sudan (72.8%), followed by Eritrea (16.5%), and Ethiopia (8%). In terms of living conditions, 65% of the refugees are accommodated in camps, while the remaining 35% live outside of these facilities. The refugee population is almost evenly split in terms of gender, with females accounting for 51%.[38] Furthermore, 2% of registered refugee population are persons with disabilities, and 12 000 are unaccompanied children.[39]

The recent escalation of conflict in Sennar State has displaced about 151 750 people (about 30 350 families) since 24 June 2024. The affected people have been displaced to other locations in Sennar and to other states in Sudan (Gedaref, Kassala, Blue Nile, White Nile, River Nile and Red Sea), and across the border to South Sudan.[40] Resources in the displacement camps in Gedaref are already severely strained, with a lack of proper shelter, healthcare and water and sanitation, especially when the camps are already hosting IDPs from previous

insecurity events and subsequent displacement.[41] Coupled with the start of the rainy season, poor living and sanitation conditions at IDP sites lead to disease outbreaks.[42]

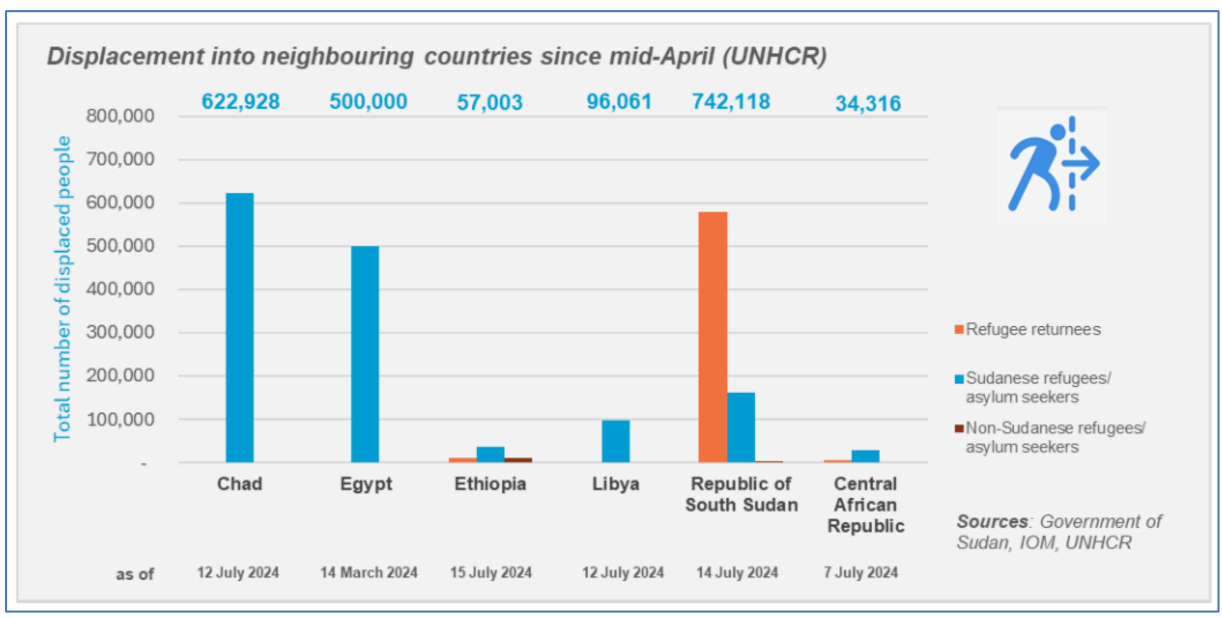


Figure 2 Displacement into neighbouring countries since mid-April (UNHCR) [43]

Food Insecurity: Alarming new food security projections show that Sudan is facing a devastating hunger catastrophe at a scale not seen since the Darfur crisis in the early 2000s.[44] About 25.6 million people – over half of the population of Sudan – face Crisis or worse levels of food insecurity (IPC Phase 3+) between June and September 2024, coinciding with the lean season, according to the latest Integrated Food Security Phase Classification (IPC) Acute Food Insecurity Snapshot. This is an increase of 45% – up from 17.7 million – since the last IPC update in December 2023. Of these, 8.5 million are experiencing emergency levels of hunger and about 755 000 people on the brink of famine during the same period, in ten states: Greater Darfur (all five states), South and North Kordofan, Blue Nile, Al Jazirah, and Khartoum. The latest analysis shows that the risk of famine is high in 14 areas in Greater Darfur, Greater Kordofan, Al Jazirah states and some hotspots in Khartoum, if the conflict escalates, humanitarian access is restricted, and families are unable to engage in farming and other economic activities. Further, the Famine Review Committee concluded that it is plausible to consider that Famine (IPC Phase 5) is ongoing in Zamzam camp in July 2024, and the trend is projected to continue in August-October 2024.[45]

The situation is worsened by the highly disrupted healthcare services, water contamination, and poor sanitation and hygiene conditions, driving a deadly combination of hunger, malnutrition, and disease.[46]

Deaths due to malnutrition-related medical complications occur increasingly regularly.[47] Camp leaders in Zalingei, Central Darfur, informed a UN team visiting in July 2024 that some internally displaced people survive on tree leaves, grain husks, and ground nut remnants.[48]

Food is the highest priority among IDP families, as over 97% of IDPs across Sudan were hosted in localities with high levels of acute food insecurity or worse (IPC Phase 3+). An estimated 89% of displaced families are unable to afford their daily food requirements.[49]

Disease Outbreaks: Sudan is facing multiple outbreaks simultaneously. However, resources and local capacities to detect and respond to outbreaks are limited, particularly in hard-to-reach areas such as in the Darfur and Kordofan states. As of 23 August 2024, at least two-thirds of the 18 states in the country are experiencing three or more outbreaks of different diseases simultaneously.[50]

With high rates of malnutrition, a debilitated health system and low levels of immunization, disease outbreaks will continue to have catastrophic impacts, particularly for children.[51]

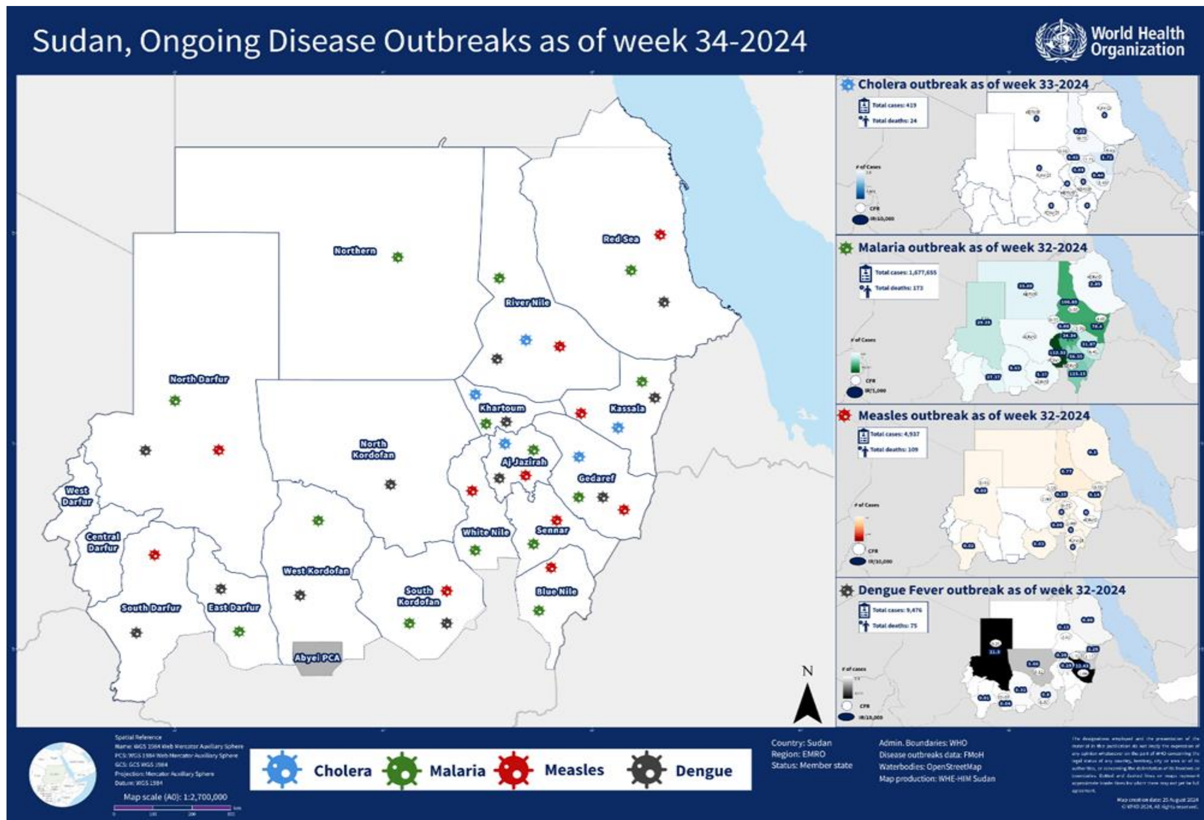


Figure 3 Sudan: On-going Disease Outbreaks (August 2024) [52]

Humanitarian Access: Humanitarian actors struggle in operating and delivering assistance to vulnerable communities in Kordofan, Darfur, and Khartoum due to bureaucratic hurdles, active armed conflict, and lack of commitment from parties to the conflict to ensure safety for operations. [53] Therefore, it is estimated that in June 2024, 1.78 million people were deprived of crucial humanitarian assistance, with 836 000 in Darfur, 61 000 in Kordofan, and 114 000 in Khartoum.[54]

The humanitarian community in Sudan continues to face numerous incidents targeting humanitarian personnel, facilities and assets impacting the scale and speed of humanitarian operation. In June 2024, the incidents targeting humanitarians included the occupation of two UN offices by armed forces in Al Fasher, and a nearby missile strike. Another UN office in Al Fasher was hit and partially damaged by indirect fire. At least seven INGOs have reported being directly or indirectly affected, with four offices, one guest house, and five medical centres damaged, and at least two humanitarian staff killed in North Darfur and West Kordofan. [55] Crossline humanitarian operations in Sudan face numerous challenges, including active conflict and violence, logistical hurdles, travel permit delays, and pervasive insecurity, severely limiting access to hard-to-reach areas.[56]

The onset of the rainy season in various parts of the country has started to affect logistics, with many areas cut off due to heavy rains and flooding. In parts of Darfur, humanitarian agencies have had to postpone the distribution of humanitarian assistance until late August due to wadis (dried water streams that turn into rivers) cutting off physical access to affected areas. [57]

The IASC Principals released a joint statement on Sudan in May 2024, calling out multiplying attacks against hospitals and calling deliberate hindrances to humanitarian aid a violation of international humanitarian law.[58]

On 15 August 2024, the Transitional Sovereignty Council announced the re-opening of the Adre border crossing for three months for the delivery of humanitarian aid to address acute needs. There was a brief suspension of the opening as the Council imposed multiple requirements for crossing; following a discussion between the UN Secretary-General and the President of the Transitional Sovereign Council, it was reopened and agreed that the UN will work with the Sudanese authorities to put in place a simplified system for the expedited processing and delivery of humanitarian assistance.

The Rainy Season and resulting Flooding: Heavy rains and flooding occur seasonally in Sudan. The rainy season typically occurs between June and September, with the rains and flooding peaking in August–September. Heavy

rains often result in the Nile and its tributaries and Gash River overflowing, leading to flooding and landslides that damage property, infrastructure, and crops, compounding humanitarian needs. In 2023, approximately 89 000 people in 31 localities across nine states were affected by heavy rains and flooding. The health impact of floods included injuries, the collapse of health facilities, isolation of communities from accessing health services, interruption of routine health services, and contamination of drinking water and food. Additionally, floods created breeding sites for mosquitoes and other vectors and helped the spread of water-borne diseases.[59]

WHO has recorded four major floods (2013, 2019, 2022 and 2024) that have aggravated disease outbreaks, increased displacement and overstretched the already burdened health system. Between 1 June and 26 August 2024, Sudan experienced 77 incidents of heavy rains and flooding, leading to multiple episodes of sudden displacement across the country. Approximately 136 455 individuals (27 291 households) have been newly displaced across 14 states. The floods have caused partial or total destruction of about 8932 structures. Notably, around 47% of those displaced by the floods were already displaced due to ongoing conflict. The highest number of individuals displaced were in River Nile (57 560), North Darfur (20 575), West Darfur (20 025), Northern (12 245) and Red Sea (11 425).[60] Examples include below:

- Heavy rainfall affected eastern Sudan on 26-27 July 2024, causing floods and resulting in casualties and damage. In Kassala, the floods directly impacted at least 10 178 newly arrived IDPs that had fled the fighting in Sennar state.[61] As gathering sites have been submerged, IDPs have no access to basic needs (due to flooded shelters, no clean drinking water, etc.). According to media reports, as of 29 July 2024, at least 12 people had died due to flooding in Kassala state, near the Eritrean border.[62] A little over 400 shelters were damaged in the Shagarab refugee camps.[63]
- Between 23 and 25 July 2024, over 1000 households have been displaced in the west of the country due to heavy rain and floods, mostly in North Darfur, a state already massively affected by the conflict.[64]

On 25 August 2024, the Arba'at Dam, which is located approximately 38km northwest of Port Sudan, suffered severe damage due to heavy rains. Authorities report that around five million cubic meters of silt were released downstream, severely disrupting agriculture and water supplies in the area. Due to the dam's collapse, 64 people were missing, 84 boreholes were damaged, 1380 latrines were destroyed, and 20 villages were inundated.[65] The heavy rains and flooding also affected between 60 and 100 families living on the western bank of the Arba'at Dam. These displaced families are now sheltered in makeshift structures nearby.[66] Preliminary assessments by the UN and other organizations indicated significant damage to the freshwater pipeline supplying Port Sudan. In some areas, exposed pipelines now cross the road, forcing vehicles to take detours. The road itself has also sustained considerable damage, with some sections at risk of collapsing if not urgently repaired.[67]

Vulnerable Groups: The scarcity of resources and limited international humanitarian aid has significantly increased the risks for vulnerable people in both host communities and amongst IDPs.[68] Specifically, those at risk are older persons, persons with disabilities, women and girls.[69] There are also reports of targeting of individuals and communities along ethnic lines and political affiliations.[70]

Furthermore, the war in the Sudan has created unconscionable and catastrophic humanitarian consequences for children, who are facing starvation and an imminent risk of famine. About 14 million children need humanitarian aid and protection assistance, lacking access to food, water, shelter, electricity, education and health care. Additionally, about 19 million children in Sudan are out of school.[71]

Regional Crisis: The conflict in Sudan has created a humanitarian catastrophe that is sending shockwaves across the region. The scale of the crisis is difficult to fathom as it has driven hunger to record levels and created the world's largest displacement crisis,[72] within Sudan and to neighbouring countries, including Chad, South Sudan, Egypt, Ethiopia, the Central African Republic, Uganda, and Libya.[73]

In Chad, 553 150 new Sudanese refugees have sought refuge in Eastern Chad, primarily in Ouaddai and Sila. As of 28 June 2024, Chad hosts 745 739 individuals who have fled the Sudanese conflict. The Chadian Government expects around 910 000 refugees and returnees by year-end 2024. Eastern Chad is also grappling with a hepatitis E and a measles outbreak.[74] In South Sudan, a large influx of displaced persons has been entering the Upper Nile region. In the past three months, 26 665 households (100 533 individuals) crossed, averaging 1400 individuals daily, including many young children and women. Intense fighting in Sennar at the end of June caused a significant surge, swelling Renk's population to around 51 987 individuals, many without shelter or necessities.[75]

HEALTH STATUS AND THREATS

Population mortality: In Sudan, life expectancy at birth has improved by 6.68 years from 62.5 years in 2000 to 69.1 years in 2019.[76] WHO reports that for females, the top causes of death were ischaemic heart disease, neonatal conditions, stroke, lower respiratory infections and hypertensive heart disease.[77] For males, the top causes of death were ischaemic heart disease, neonatal conditions, stroke, road injury and lower respiratory infections.[78] However, according to the Annual Health Statistical Report 2019, the top causes of death include pneumonia (7.4%), followed by malaria (6.8%), and malignant neoplasms (4.6%).[79] This demonstrates there are significant challenges due to the multiple non-aligned, un-linked, uncoordinated data systems in use. [80] There is a lack of data sharing, disaggregated data and weak data analysis, reporting capacity and use of data collected in decision-making processes. Information relies heavily on population studies rather than routine data. [81] There is no active mortality surveillance system for the crisis-affected areas; few mortality surveys (in the context of SMART surveys) have been published since the start of the conflict, and even fewer from any of the most crisis[82].

Sudan health indicators are lagging MDG/SDG targets. Sudan continues to have high rates of child and maternal mortality. The maternal mortality ratio was 295 per 100 000 live births in 2017, while the 2015 MDG target was 134 and the 2030 SDG target is 70.[83] Health outcome disparities across states, gender and poverty levels have not yet been addressed.[84] The under-5 mortality rate is highest in East Darfur State (112 per 1000 live births) and lowest in the Northern State (30 per 1000 live births).[85] Children living in the poorest households are twice as likely to die before their fifth birthday, compared to children from the wealthiest household.[86]

MORTALITY INDICATORS	SUDAN	YEAR	SOURCE
Life expectancy at birth	69.1 years	2019	WHO[87]
Crude mortality	7 per 1000 people per year	2020	World Bank[88]
Infant mortality rate (deaths < 1 year per 1000 births)	39 per 1000 people per year	2021	UNICEF[89]
Child mortality rate (deaths < 5 years per 1000 births)	54 per 1000 people per year	2021	UNICEF[90]

Vaccination coverage: Prior to the onset of conflict, Sudan had witnessed a remarkable improvement in routine vaccination coverage during the last few years. This was a result of the stable implementation of routine immunization for the prevention and control of vaccine-preventable childhood diseases. [91] The routine immunization programme in Sudan has good political support which has been translated into modest financial support. [92]

Since the conflict began, health infrastructure and immunization services have been disrupted. Hundreds of thousands of children have been left unvaccinated and at risk of infection from vaccine-preventable diseases such as polio. This situation is made worse by the displacement of large numbers of people.[93] Sudan, Yemen, and Syria are home to nearly 87% of the total zero-dose children in the region, with Sudan alone contributing 42% of these zero-dose children.[94]

SUDAN VACCINATION DATA (WHO)[95]		Regional Comparison
DTP-containing vaccine, 1st dose (2022)	94%	80%
DTP-containing vaccine, 3rd dose (2022)	84%	72%
Polio, 3rd dose (2022)	85%	71%
Rotavirus, last dose (2022)	84%	51%
Measles-containing vaccine, 1st dose (2022)	81%	69%
Measles-containing vaccine, 2nd dose (2022)	63%	45%

COVID-19 Vaccination: A total of 29% of the population received a vaccine by March 2023. This accounts for 12.6 million people.[96]. COVID-19 vaccination was integrated into routine immunization. Until May 2024, unpublished reports from national EPI program indicate that vaccination has reached an additional 7.7 million people. A 2023 study on vaccine hesitancy found that in Sudan, higher education levels and employment were associated with an increase in knowledge about the vaccine in around half of the participants. However, most participants had not taken the vaccine at the time of the study, and the trust in vaccines was found to not be high, with many having concerns about safety.[97]

DISEASE RISK OVERVIEW		
SUDAN: KEY HEALTH RISKS OVER COMING MONTHS		
Public health risk	**Level of risk*****	**Rationale**
Trauma and injury		The security situation in Sudan remains highly volatile, characterised by ongoing armed conflict, criminal activities and communal tensions.[98] More than 18 800 people have been killed and over 33 000 injured since the conflict broke out in April 2023 according to humanitarian partners.[99] Access to trauma care is impeded by a lack of access to hospitals, and an urgent need for access to trauma kits.
Malnutrition		Sudan has one of the highest rates of child malnutrition worldwide.[100] A stark and rapid deterioration of the food security situation has been reported, and 54% of the population (25.6 million) in the country is classified as IPC 3 or above. This includes 755 000 people (2% of the population) categorized as IPC 5 (Catastrophe).[101] Furthermore, famine conditions are confirmed to be prevalent in parts of North Darfur, notably the Zamzam IDP camp, south of El Fasher.[102]
Measles		The current measles outbreak began in 2023, and as of 9 August 2024, 5462 cases have been reported from 14 states, with likely more cases in hard-to-reach (non-reporting) areas. A total of 119 deaths have been reported from nine states, for a case fatality rate (CFR) of 2.2%. There is low immunization coverage, particularly in hard-to-reach areas. The risk of measles outbreaks will be particularly high for mobile populations including IDPs, refugees, and any others in camp settings. This risk is further exacerbated by limited access to vaccination.
Cholera		A new cholera outbreak in Kassala and other states was officially declared on 12 August 2024, and the cumulative number of cases and deaths has reached nearly 2700 and 120, as of the end of August 2024.[103] The previous cholera outbreak started in June 2023 and was officially declared in September 2023. As of 12 July 2024, a total of 11 241 cases had been reported from 12 states. The weekly reported cases peaked in epidemiological week 49 at the end of last year, with over 1468 cases from 2 to 8 December 2023, followed by a declining trend. A total of 323 deaths had been reported from 11 states, for a CFR of 2.8%.[104] The previous outbreak had unofficially ended before the present one began (more than two incubation periods without a case).
Malaria		Malaria accounts for around 20% of total outpatient consultations.[105] Since the beginning of 2023 and as of 9 August 2024, 1 736 841 cases have been reported from 15 states. A total of 177 deaths have been reported from seven states, for a CFR of 0.01%.[106] Malaria has remained stagnant on the list of the top ten causes of illness, and it remains a substantial health problem and national health priority.[107]
Dengue Fever		Dengue remains a major health burden in the country. From 17 July 2023 through 23 August 2024, 9484 cases have been reported from 12 states. The weekly reported cases peaked between 7 and 13 October 2023, with over 700 cases, followed by a declining trend. A total of 75 deaths have been reported from nine states, for a CFR of 0.79%.[108]
Non-communicable Diseases (NCD)		NCDs contribute to over half of all mortalities in Sudan, with specifically high burdens such as rheumatic heart disease, hypertension, and diabetes.[109] Data from the NCD Progress Monitor showed that the percentage of NCD-related mortality had increased from 32% in 2015 to 54% in 2022.[110] The current conflict has disrupted essential services and

		supplies of medicine. Insulin has been identified as an urgently needed medical supply.[111] Access to haemodialysis remains a challenge for patients with chronic kidney disease and acute kidney injury.
Mental health		Sudan's civil wars have been linked to an increase in mental health conditions such as depression and post-traumatic stress disorder (PTSD), particularly among children and women. [112] No national prevalence study has been conducted, but higher rates of psychiatric disorders have been found among internally displaced persons (53%). [113] Many communities throughout Sudan use traditional and religious healers to help meet their mental health needs. [114]
Acute Respiratory Tract Infections (ARTI)		Viral: Among the viral ARTI, SARS-CoV-2 transmission may be somewhat exacerbated by crowded conditions due to displacement. Increased mortality and morbidity may occur among severe cases due to a lack of access to oxygen and other lifesaving care caused by the conflict. [115] As of March 2023, there had been 63 829 cases reported in Sudan, with 5017 deaths.[116] Bacterial: Due to the conflict, the vaccination coverage remains low in most areas of the country. *Haemophilus influenzae* type b (Hib), pneumococcal and pertussis put disease burdens high, particularly among children. Hib can cause pneumonia, sepsis and meningitis. Pneumococci are a commensal host of the nasopharynx, with carriage prevalence often ranging between 50-80% in children, occasionally leading to pneumonia and more rarely sepsis and meningitis. Pertussis risk of disease and severity is highest among young infants. There have been reports of suspected pertussis outbreaks in Darfur in the period of May-August 2024.
Acute enteric diseases, including typhoid and rotavirus		Acute enteric diseases are a leading cause of morbidity and mortality in Sudan, particularly in Darfur in the current context. Examples include rota virus and typhoid. Poor water, sanitation and hygiene (WASH), coupled with susceptible populations due to disrupted vaccination campaigns, remains a risk. Typhoid fever is still a major public health issue in Sudan, notably in communities with limited healthcare systems, with a high percentage of the population living in unhygienic environments, and don't have access to safe water.[117] Since the escalation of violence on 15 April 2023 through 9 August 2024, a total of 228 303 cases have been reported across 15 States. In addition, although based on the EPI schedule in Sudan, the Rotavirus 1-valent (RV-1) vaccine is administered at six, 10 and 14 weeks, the vaccination remains suboptimal after the onset of the conflict.
Protection Risks (including GBV)		Reports of the numerous incidents of conflict-related sexual violence perpetrated by parties to the conflict, sexual slavery and trafficking, child and forced marriage, and the recruitment of boys by armed forces have increased since December 2023. [118] Many incidents may go unreported due to poor communications, lack of access to services and community stigma. [119]
Poliovirus type 2 (cVDPV2)		In January 2024, a new strain (SUD-RED-1) of circulating vaccine-derived poliovirus type 2 (cVDPV2) was isolated from environmental samples collected from the Port Sudan district of Red Sea state in Sudan;[120] it was detected in six wastewater samples collected from September 2023 to March 2024. [121] The risk at the national level is assessed as high given the massive conflict within the country, sub-optimal surveillance system, disrupted vaccination, and concurrent health emergencies. [122]
Maternal and neonatal health		More than one million women in Sudan are pregnant and in need of immediate and continuous access to essential reproductive health services. The collapse of maternal services in Khartoum and in many parts of Sudan

		left thousands of Sudanese pregnant women without basic maternal health services.[123] Given the high rates of female genital mutilation (FGM) in Sudan, where 87% of women females aged 15–49 years have undergone the practice[124] and 50% of them have been infibulated, women face increased maternal and neonatal health risks due to lack of access to de-infibulation during childbirth.
Chronic infectious diseases (TB/HIV)		For all chronic infectious diseases, interruption of treatment is likely given the ongoing conflict. This is exacerbated by a current lack of diagnostic capacity and medication.
Hepatitis B		Recent evidence classifies Sudan among countries with a high hepatitis B virus infection (prevalence ≥ 8% according to WHO 2016 data).[125] Increased risk may occur in a context of gender-based and sexual violence, and higher severity in the absence of access to healthcare for infections resulting in severe acute hepatitis.
Hepatitis E		There has been an ongoing hepatitis E outbreak in the country since 2021. As of 14 April 2023, a total of 2 884 suspected cases (AR 0.51/1,000) including 24 associated deaths (CFR 0.83%) had been reported.[126] Since the escalation of violence on 15 April 2023 through 9 August 2024, a total of 573 cases have been reported across nine States. There is a risk of increase in cases, given issues with access to clean water, sanitation, and hygiene products.[127]
Mpox		The total reported suspected mpox cases between 1 January 2022 and 4 April 2023 reached 378: this included 19 confirmed cases and one associated death. In total, 38 localities from 13 States reported suspected cases and 11 localities from six states reported 19 confirmed cases.[128] There are no confirmed cases from Sudan in 2024, although two suspected cases have been identified in Central Darfur and Khartoum states.[129] The first suspected case was reported on 18 July 2024 from Central Darfur for child who had recently travelled from Chad. However, details are still pending. The second suspected case was reported from Khartoum State. The case is a 2-year-old male presented with fever and skin rash starting on 10 August 2024. He admitted to the hospital on 17 August 2024 and received the treatment. A skin lesion specimen was collected, and blood serum is pending for transport to Port Sudan for PCR testing, as the initial RDT was negative.
Meningitis		Worldwide, the incidence of meningitis is highest in the African meningitis belt, which includes Sudan; in the meningitis belt, at least 350 million people are at risk for meningitis during annual epidemics. Between 15 April 2023 and 9 August 2024, 155 cases were reported from 10 states, with 20 associated deaths from six states (CFR 10.4%); these are recorded as 'viral meningitis' but it is not clear that none of these have been meningococcus, as there is not systematic testing. The vaccination remains suboptimal after the onset of the conflict, and the availability of antibiotics for bacterial meningitis remains limited.
Diphtheria		Pre-conflict in 2022, diphtheria was considered one of the high-risk hazards facing Sudan.[130] Although routine DTP vaccination is part of the Expanded Programme on Immunization (EPI), there are still reported cases and outbreaks of diphtheria across the country.[131] The most recent outbreak occurred in 2019 with 105 reported cases, with most cases coming from one locality in South Darfur state.[132] Since the escalation of violence in April 2023 through 9 August 2024, a total of 26 cases of diphtheria have been

		reported from three states, although surveillance is very limited. The availability and access to treatment (e.g., anti-toxin) remains challenging.
Yellow Fever		Sudan belongs to the yellow fever zone, and large epidemics were reported in Sudan in 1940, 1959, 2003, 2005, 2012 and 2013. Sudan conducted a yellow fever risk assessment exercise in early 2013 and confirmed that the yellow fever virus was circulating in all parts of the country. Also, there have been reports of laboratory confirmed cases from surrounding countries (e.g., Chad in October 2023, South Sudan in December 2023) as well as suspected cases, and there remains a risk of transmission that needs to be addressed with vector control.
Technological and environmental health risks		In April 2023, WHO officials initially believed it was extremely dangerous when one side in the conflict seized the National Public Health Laboratory and asked technicians to leave.[133] However, according to the WHO Rapid Risk Assessment that followed, all pathogens present in the laboratory were already present in the community, so there was little risk of major community outbreaks due to leak of samples from the lab.[134]
****[Select cell and fill with the colour]* Red: **Very high risk**. Could result in high levels of excess mortality/morbidity in the upcoming month. Orange: **High risk**. Could result in considerable levels of excess mortality/morbidity in the upcoming months. Yellow: **Moderate risk.** Could make a minor contribution to excess mortality/morbidity in the upcoming months. Green: **Low risk.** Will probably not result in excess mortality/morbidity in the upcoming months.		

Trauma and injury: More than 18 800 people are reported to have been killed and over 33 000 injured since the conflict broke out in April 2023 according to humanitarian partners.[135] Most civilian deaths have been the result of the use of heavy weaponry in densely populated areas, with women and children constituting a significant proportion of the casualties reported.[136] Violence against civilians was reported at particularly alarming rates in Al Jazirah and North Darfur states. [137]

Estimates for the total number of people injured or killed during the war vary; but Médecins Sans Frontières (MSF), which works in eight states across Sudan, revealed that in just one of the hospitals it supports, Al Nao hospital in Omdurman, Khartoum state, 6 776 patients were treated for injuries caused by violence between 15 August 2023 and 30 April 2024, an average of 26 people per day.[138] Furthermore, MSF has treated thousands of patients for conflict related injuries across the country, most for injuries caused by explosions, gunshots and stabbings. A healthcare worker in Al Nao hospital described the aftermath of shelling in a residential area of the city – "About 20 people arrived and died straight after, some arrived already dead. Most of them came with already hanging hands or legs, already amputated. Some only with a small part of skin keeping two limbs together. One patient came with an amputated leg, their caregiver followed behind, carrying their missing limb in their hand." [139]

The armed conflict in Sudan is also a child protection crisis, resulting in the highest number of grave child rights violations verified in Sudan in more than a decade. A five-fold increase in grave violations was recorded from 2022 to 2023. Darfur remains one of the most dangerous places for children in Sudan. In 2023, 64% of verified violations took place in the region. Child casualties have alarmingly increased since the conflict began, with 72% of violations verified involving the killing or maiming of children. [140]

Malnutrition: Sudan has one of the highest rates of child malnutrition worldwide.[141] The worsening security situation is anticipated to intensify food insecurity. [142] Children, already vulnerable, face worsened conditions due to the fighting. They are missing meals, suffering stunted growth, and facing increased risks of deadly diseases. [143] Children under five endure acute malnutrition at incredibly high levels, with hundreds of thousands fighting life-threatening malnutrition.[144] The latest IPC report shows severely concerning deterioration of food security till the remainder of 2024, with a risk of famine in many parts of the country. 54% of the population (25.6 million) in the country is classified as IPC Phase 3+. This includes 755 000 people (2% of the population) categorized as IPC Phase 5 (Catastrophe). This has a direct implication on children expected to face severe acute malnutrition. According to the nutrition cluster estimates, more than 710 000 children are expected to face severe acute malnutrition (SAM) in 2024.[145] This figure represents the highest number of people in need of nutrition assistance ever recorded in Sudan. [146] Without intervention, the number could rise to 3.5 million before the end of 2024.[147]

Malnourished people, particularly pregnant women and children, experience the worst outcomes of disease.[148] Malnourished children are at increased risk of dying from illnesses like diarrhoea, pneumonia and measles, especially in settings where they lack access to life-saving health services.[149] In Darfur, there are reports of people resorting to eating animal feed and tree bark. For the first time since the crisis began, displacement in the Darfur states is now being driven by hunger rather than insecurity.

Measles: The current measles outbreak began in 2023, and as of 9 August 2024, 5462 cases have been reported from 14 states. A total of 119 deaths have been reported from nine states, for a CFR of 2.2%.[150] There is low immunization coverage, particularly in hard-to-reach areas, indicating a high risk of outbreaks of vaccine-preventable diseases. In the past year, most children in the Darfurs and Kordofans have received no measles vaccination. There is an ongoing planning for a multi-antigen immunization campaign for the Darfur states.[151]

Pre-conflict in 2022, measles was considered one of the major risks facing Sudan.[152] There is a lack of locality-based data on disease outbreaks for measles. However, data indicate that nearly 30% of the cases are estimated to be severe and targeted for case management. According to the Federal Ministry of Health (FMOH) national Measles risk assessment conducted in July-August 2021, a total of 25 localities in 12 States were identified as having high or very high of measles.[153]

According to Sudan immunity profile data, by 31 December 2022, the number of measles-susceptible children under five years of age would be 1 145 174 (average of 2018-2021 unprotected children 17%).[154] Such a large number of measles-susceptible children puts Sudan at risk of large measles outbreaks. The risk of measles outbreaks will be particularly high for mobile populations including IDPs, refugees, and any others in camp settings. This risk is further exacerbated by lack of access to vaccinations.[155]

Cholera: A new cholera outbreak in Kassala and other states has rapidly evolved from late July 2024, and the cumulative number of cases and deaths has amounted to nearly 2700 and 120, as of the end of August 2024. The outbreak was officially declared on 12 August 2024, and has involved five states (Kassala, Khartoum, Al Jazirah, Gedaref, and River Nile), with the highest number of cases and deaths in Kassala.

The previous cholera outbreak started in June 2023 and was officially declared in September 2023. As of 12 July 2024, a total of 11 241 cases had been reported from 12 states. The weekly reported cases peaked in epidemiological week 49 at the end of last year with over 1400 cases from 2 to 8 December 2023, followed by a declining trend. Data collection has been challenging, with no reports from the five Darfur states and West Kordofan state since the start of the conflict. A total of 309 deaths were reported from 11 states, for a CFR of 2.8%.[156] The previous outbreak had unofficially ended before the present one began (more than two incubation periods without a case).

Many parts of Sudan deal with annual floods during the rainy season and those areas have historically been susceptible to the waterborne diseases that accompany the rains. Poor sanitation, due to weak infrastructure and adverse hygiene practices allows acute watery diarrhoea (AWD) to spread rapidly through populations.[157]

In Sudan, the traditions and habits of the community constitute one of the factors that increase the transmission of cholera. Paradoxically, cholera treatment centres play a catalytic role in cholera transmission.[158] As part of the Sudanese cultural practice, family members are allowed to enter the cholera treatment centres (CTCs) to take care of their loved ones.[159] This poses a challenge for Infection, Prevention and Control officers as they endeavour to protect patients, healthcare workers, and patients. It has been observed that some visitors come with healthcare-acquired infections and reinfect the previous patients.[160]

Sudan experienced more than seventeen outbreaks of cholera and or AWD during the years 1966, 1970, 1972, 1980, 1981, 1985, 1988, 1999, 2002, 2004, 2006, 2007, 2008, 2016, 2017, 2018, 2019 and 2020.[161]

The 2018 simple spatial survey method (S3M-II6) showed an increase in access to water by 6% over the 2014 multiple index cluster survey (MICS) figure of 68%.[162] Still, around twelve million people (or around one-third of the population) do not have access to safe drinking water and are at risk of waterborne disease.[163] Sanitation coverage has stagnated, and nearly a third of children and their families (around 12 million people) are practicing open defecation.[164]

Malaria: Malaria has remained stagnant on the list of the top ten causes of illness, OPD attendance, hospital admission and deaths in Sudan; and hence, it remains a substantial health problem and national health priority.[165] Malaria accounts for around 20% of total outpatient consultations.[166] Since the beginning of 2023 and as of 9 August 2024, 1 736 841 cases have been reported from 15 states. A total of 177 deaths have been reported from seven states, for a CFR of 0.01%.[167]

Pre-conflict in 2022, malaria was considered one of the major risks facing Sudan.[168] The entire population is at risk of malaria, with 86.7% of the population classified to be at high risk. [169] Sudan shares international borders with seven countries; five of them are malaria endemic. The rainy season varies from about three months (July - September) in the north, to six months (June - November) in South Kordofan, Blue Nile and South Darfur states, resulting in various periods of malaria endemicity. [170]

Dengue fever: Dengue remains a major health burden in the country. From 17 July 2023 through 23 August 2024, 9484 cases have been reported from 12 states. The weekly reported cases peaked between 7 and 13 October 2023, with over 700 cases, followed by a declining trend. A total of 75 deaths have been reported from nine states, for a CFR of 0.79%. [171]According to the FMOH, the current dengue fever outbreak started in July 2022, with the first suspected dengue case reported on 31 July 2022 from the Kassala locality in Kassala State. An outbreak was officially declared on 14 February 2023. [172]

Pre-conflict, dengue was considered one of the major risks facing Sudan. [173] The public health threat of arboviruses is rapidly growing worldwide, particularly in Sub-Saharan Africa including Sudan. The predominant mosquito vector, *Aedes aegypti*, transmitting viruses causing dengue fever, chikungunya, yellow fever (YF), West Nile, and Rift Valley fever (RVF), is widely prevalent in all 18 States of Sudan, although the prevalence is relatively lower in Khartoum and Northern State. In 2022, dengue was found to have expanded beyond its historical spatial distribution to reach new areas, especially those heavily infested with the *Aedes aegypti* mosquito, affirming the impact of high population movement on disease distribution.[174]

The current situation in Sudan will have implications on prevention and control of vector-borne diseases in general. The existing vector control programs are poorly resourced and will demand additional financial and logistical resources. The displaced populations as well as the host communities in states including Gazira and Sennar will require immediate coverage by core vector control interventions to ensure their protection. [175]

Many affected areas are suffering acute water supply shortages, leading to prolonged water storage practices, creating suitable breeding environments for the *Aedes* mosquito. The risk of mosquito breeding is expected to rise due to damage of water stations and interruption of distribution programs, in addition to increased water storage practices; this is particularly the case in Khartoum, North Kordofan, West Darfur, and White Nile States, where dengue was circulating and the security situation is preventing access to drinking water in addition to an increasing demand on trained vector-control staff and high transportation costs due to fuel scarcity.[176]

Non-communicable Diseases (NCDs): Data from the NCD Progress Monitor showed that the percentage of NCD-related mortality had increased from 32% in 2015 to 54% in 2022. [177] Sudan faces challenges in implementing NCD policies, particularly those targeting healthy diets, medications and data management systems. This may be linked to the prolonged history of conflict, shortage of trained health personnel, limited resources and lack of robust NCD surveillance systems in the country. The ongoing devastating war and destruction of the healthcare system infrastructure in Sudan has further intensified these challenges.[178]

Insulin has been identified as an urgently needed medical supply.[179] On 24 June 2023, 13 children with kidney disease reportedly died due to inadequate treatment options. [180] An MSF report from Al Nao Hospital confirmed the facility had exhausted its normal supply of insulin and the medical team are now reporting on average three to five deaths due to diabetic ketoacidosis (DKA) daily. [181] MSF reported on mortality data between 19 August to 20 October 2023, finding that out of the medical deaths at the hospital, 17% (n=42) were due to DKA, which is preventable with sufficient access to insulin. Due to the huge access barriers caused by violence and the lack of readily available medication, the number of people dying in the community from DKA is likely to also be high. In addition to the 42 DKA deaths, there were 49 deaths in the hospital in this period due to other NCDS, including hypertension, acute coronary syndrome, cardiovascular disease, as well as chronic renal and liver failure.[182] MSF also report that 20% of all patients seen by the mobile clinic teams in Al Jazeera presented with an NCD.[183] One dialysis centre in Darfur has indicated that all 200 of its clients are presumed dead due to disruption of services.

The prevalence of cardiovascular disease (CVD) in Sudan was estimated at 2.5% following a 2011 study, but has likely increased since then. Hypertensive heart disease (HHD), rheumatic heart disease (RHD), ischaemic heart disease (IHD) and cardiomyopathy constitute more than 80% of CVD in Sudan. [184] In the immediate term, for those affected with CVD, there is a risk of interruption in supply of medicines and limited access to healthcare. This is critical for people with uncontrolled blood pressure and/or people at higher risk of stroke; thus, higher mortality is expected in the immediate term for these conditions. [185]

Risk of disruption of treatment and health care capacity is also likely to lead to an increased risk of negative outcomes for oncology patients. There is a particularly high risk for individuals under immunosuppressive therapy, given the increased risk of infection in the context of the crisis. [186]

With health facilities under-resourced and understaffed, coupled with economic hardship and cost of transportation, many patients arrive in advanced, critical stages of their diseases, often complicated by additional health issues or co-morbidities. Even if medical teams can provide some level of treatment to manage the conditions, there remain obstacles to effectively address the NCDs, like a lack of alternative secondary healthcare facilities for critical patient referral. [187]

Mental Health: Sudan's civil wars have been linked to an increase in mental health conditions such as depression and post-traumatic stress disorder (PTSD), particularly among children and women.[188] Although no national prevalence study has been conducted, many articles have been published addressing the psychiatric needs of specific groups. For instance, the prevalence of depression and anxiety in high-school students in Khartoum State has been estimated to be 12%.[189] Higher rates of psychiatric disorders have been found among internally displaced persons (53%), including major depressive disorder (24.3%), generalised anxiety disorder (23.6%), social phobia (14.2%) and post-traumatic stress disorder (12.3%).[190]

The prevalence for major psychotic disorders among the internally displaced population is 1.5%, but no data are available for suicide attempts, completed suicides, or drug and alcohol addiction.[191] More broadly, the International Committee of the Red Cross have found that more than one person in five that live in a conflict area have some form of mental health condition.[192]

In April 2024, the director of the Bit Makli Organisation reported treating 6319 mental health cases across nine states in Sudan since the outbreak of the war, with 70% of the people suffering from mental disorders, 10% were victims of rape, and 20% were drug addicts. [193]

In January 2024, the Sudan Health Cluster reported that just nine out of 189 localities are covered by partners providing mental health services, in only five out of 18 states.[194] Since the beginning of the conflict, 12 psychiatric hospitals in Khartoum, Wad Madani, and Kassala have closed.[195] Another key challenge for service providers is the scarcity of medications, which have also become extremely costly.[196]

Although mental health is a major cause of morbidity, mental health programmes had insufficient resources even pre-crisis.[197] In 2020, the total number of mental health professionals working in all sectors, including the private sector and services run by non-governmental organisations (NGOs), was 899. There are also massive regional inequities; only a small proportion of psychiatrists work in rural areas, which are home to two-thirds of Sudan's population. [198]

Many communities throughout Sudan use traditional and religious healers to help meet their primary healthcare needs, including for mental health. Besides being accessible and available, traditional healers are often part of the wider cultural belief system and are considered integral to everyday life and well-being. [199]

Acute respiratory tract infection (ARTI):

Viral: Among the viral ARTI, SARS-CoV-2 transmission may be somewhat exacerbated by crowded conditions due to displacement. Increased mortality and morbidity may occur among severe cases due to a lack of access to oxygen and other lifesaving healthcare caused by the conflict.[200] As of March 2023, there had been 63 829 cases reported in Sudan, with 5017 deaths.[201]

Bacterial: Between 15 April 2023 and 9 August 2024, 139 cases of pertussis reported from seven states, with no associated deaths reported.[202] In addition, there have been reports of suspected pertussis outbreak in Darfur in May/June 2024. According to the EPI schedule in Sudan, pentavalent (DTwP-HiB-HepB) vaccine and pneumococcal conjugate vaccine (PCV) are administered at six, 10 and 14 weeks. However, due to the conflict the vaccination coverage remains low in most of the country, and likely low in most birth cohorts aged five and below. *Haemophilus influenzae* type B (Hib), pneumococcus and pertussis put disease burdens, particularly among children. Hib can cause pneumonia, sepsis and meningitis. Pneumococci are a commensal host of the nasopharynx, with carriage prevalence often ranging between 50-80% in children, occasionally leading to pneumonia and more rarely sepsis and meningitis. The risk of disease and severity of pertussis is highest among young infants, and immunity from vaccination remains suboptimal.

Acute enteric diseases: Acute enteric diseases are a leading cause of morbidity and mortality in Sudan, and particularly in Darfur in the current context.

Typhoid fever is still a major public health issue in Sudan, notably in communities with limited healthcare systems, with an uneducated population that lives in unhygienic environments, and with residents who habitually drink unsafe water from tube wells and do not typically wash their hands after using the restroom. Since the escalation of violence on 15 April 2023 through 9 August 2024, a total of 228 303 cases have been reported across 15 States.

The contribution of rotavirus to the acute diarrheal burden varies; however, recent estimates suggest its contribution to mortality and morbidity is particularly high in African countries. Severe disease and mortality mostly affect children <24 months of age. Based on the EPI schedule in Sudan, Rotavirus 1-valent (RV-1) vaccine is administered at six, 10 and 14 weeks; however, vaccination remains suboptimal since the onset of the conflict. Poor water, sanitation and hygiene measures, coupled with susceptible populations, are risks for acute enteric diseases.

Protection Risks (including GBV): The UN reports that 53% of displaced persons in Sudan are women and girls and that more than 6.7 million people in Sudan are at risk of gender-based violence (GBV). Furthermore, intimate partner violence, sexual exploitation and abuse, and trafficking in persons are widespread and increasing. With persistent food insecurity among displaced families, particularly female-headed households, widows, adolescent girls, and people with disabilities, the adoption of negative coping mechanisms for survival is on the rise. In a food-insecure environment, the risk of GBV increases.

Women and girls in conflict zones are facing escalating protection threats and reduced access to basic services, such as essential healthcare. Armed groups have terrorized women and girls, and both warring parties have blocked them from getting aid and support services, compounding the harm they face. MSF reports shocking cases of sexual and gender-based violence, especially in Darfur. An MSF survey of 135 survivors of sexual violence treated by MSF teams between July and December 2023 in refugee camps in Chad close to the Sudanese border found 90% were abused by an armed perpetrator, 50% were abused in their own homes and 40% were raped by multiple attackers. These findings are consistent with testimonies from survivors still in Sudan, demonstrating how sexual violence is being perpetrated against women in their homes and along displacement routes, a characteristic feature of the conflict.

Poliovirus type 2 (cVDPV2): In January 2024, a new strain (SUD-RED-1) of circulating vaccine-derived poliovirus type 2 (cVDPV2) was isolated from environmental samples collected from the Port Sudan district of Red Sea state in Sudan;[203] it was detected in six wastewater samples collected from September 2023 to March 2024. [204]

Three rounds of novel oral polio vaccine type 2 (nOPV2) campaigns were implemented in Red Sea state in April, June and August 2024. In addition, other seven states have implemented first rounds in June 2024, and five states have implemented second rounds in August 2024.

Currently, no human cases are associated with this new strain. However, in 2022 the country was affected by cVDPV2, and a case with acute flaccid paralysis (AFP) caused by a different stain (emergence group NIE-ZAS-1) was reported in West Darfur.[205]

Although poliomyelitis (polio) is a highly contagious disease that can cause permanent paralysis (approximately one in 200 infections) or death (2-10% of those paralyzed), this environmental detection does not currently represent a serious public health impact.[206] Pre-conflict in 2022, poliovirus was considered a moderate risk in Sudan.[207]

Surveillance for poliovirus in children – conducted by searching intensely for acute flaccid paralysis (AFP), the most common indicator of polio infection – and in wastewater has been strengthened to swiftly detect any presence of the virus.[208]

Maternal and neonatal health: More than one million women in Sudan are pregnant and in need of immediate and continuous access to essential reproductive health services. The collapse of maternal services in Khartoum and in many parts of Sudan left thousands of Sudanese pregnant women without basic maternal health services.[209] In April 2024, it was reported that around 1.3 million babies will be born in Sudan in 2024 as the war continues.[210] But with the health system on the brink of collapse and mothers seeking services in congested and overstretched health facilities, the lives of mothers and their babies many remain at risk. Previously, Port Sudan hospital registered an average of 15 deliveries a day, but the numbers have since doubled following massive displacements.[211]

The UN Office of the High Commissioner for Human Rights (OHCHR) has received information that women's sexual and reproductive health and rights have been severely impacted. Women's access to maternal health

services has become increasingly challenging due to the scarcity and inaccessibility of healthcare facilities across the country.[212] The destruction of hospital buildings and health centres, a shortage of medication and medical supplies, and medical personnel and hospitals being under incessant attacks associated with the conflict, have impeded essential maternal health services, such as antenatal care, safe deliveries, and postnatal care.[213] Many pregnant women travel a long distance to access care, which can be laborious and harmful to their health and the health of the baby. [214]

Furthermore, the conflict has not only caused a reduction in maternal health care but has also meant there are no resources to care for the increasing number of preterm babies resulting from the insecurity, stress, and malnutrition endured by the pregnant women. [215] Being born prematurely can cause lifelong developmental issues in the babies. A delay in emergency obstetric care and giving birth in places with poor sanitation can worsen Sudan's infant and maternal mortality rates.[216] Pregnant women have also not been spared from the psychological consequence of conflict. The traumatic nature of the conflict and the sound of bullets and artillery trigger fear, panic, and anxiety in this vulnerable group.[217]

A summary of maternal and new-born care health indicators is displayed below (data are the most recently available, from various years):

MATERNAL AND NEWBORN HEALTH INDICATORS[218]	Sudan	Source
Postnatal care for mothers – percentage of women (aged 15-49 years) who received postnatal care within 2 days of giving birth (Female)	27%	UNICEF
Antenatal care 4+ visits – percentage of women (aged 15-49 years) attended at least four times during pregnancy by any provider (Female)	51%	UNICEF
Skilled birth attendant – percentage of deliveries attended by skilled health personnel (Female)	78%	UNICEF
C-section rate – percentage of deliveries by caesarean section	9%	UNICEF

Infant and young child feeding (IYCF) practices directly affect the health, development and nutritional status of children less than two years of age and, ultimately, impact child survival.[219] A summary of breastfeeding related indicators is displayed below (data is the most recently available, from various years):

NUTRITION INDICATORS[220]	Sudan	Source
Early initiation of breastfeeding	69%	UNICEF
Exclusive breastfeeding (0-5 months)	55%	UNICEF

UNFPA has raised concerns about the decrease in access to healthcare services, with 3.5 million women and girls of reproductive age needing reproductive health care services. [221] Meanwhile, humanitarian access is compromised in conflict zones, impacting medical care, maternal health, and the supply of menstrual hygiene products. [222]

About 14 million girls and women in Sudan are affected by female genital mutilation (FGM), which is mainly performed by midwives (77%).[223] Despite being outlawed in July 2020, the harmful traditional practice of female genital mutilation (FGM) still persists.[224] Given the high rates of FGM in Sudan, where 87% of women females aged 15–49 years have undergone the practice[225] and 50% of them have been infibulated (undergone suturing of the vulva), women face increased maternal and neonatal health risks due to lack of access to de-infibulation during childbirth. The lack of management of uro-gynecological heath complications of FGM in the current health system further exacerbates the health burden of women in Sudan.

Chronic infectious diseases (TB/HIV): Given the ongoing conflict, interruption of treatment is likely for all chronic infectious diseases. Interruption of treatment will likely impact both disease course and transmissibility. Limited access to health care for acute flare-ups and opportunistic infections may result in excess deaths. This is exacerbated by a current lack of diagnostic capacity and medication.

The incidence of tuberculosis (TB) is 63 per 100 000, equalling 28 000 new cases per year. Mortality from TB is estimated to be 4100 per year.[226] Conflicts impact health infrastructure and human resources, which can hinder disease prevention and control measures and escalate the burden of communicable diseases including TB. In

addition, conflicts cause the displacement of populations and impair access to healthcare. This can increase TB transmission, worsen patient outcomes and lead to increasing rates of drug resistance.[227]

Although the HIV epidemic in Sudan has been classified as a low epidemic for the last 10 years, enrolment and retention on treatment are low.[228] HIV prevalence is around 0.2% as per the 2019 estimates and projections. There are remarkable variations in the distribution of the HIV burden between the different regions/ states of the country.[229]

Hepatitis B: Recent evidence classifies Sudan among countries with a high hepatitis B virus infection (prevalence ≥ 8% according to WHO 2016 data).[230]

Hepatitis E: There has been an ongoing hepatitis E outbreak in the country since 2021. As of 14 April 2023, a total of 2 884 suspected cases (AR: 0.51/1000) including 24 associated deaths (CFR 0.83%) had been reported.[231] Since the escalation of violence on 15 April 2023 through 9 August 2024, a total of 573 cases have been reported across nine states, although there is likely hepatitis E in non-reporting states such as the Darfurs, given the identification of hepatitis E in refugees from the Darfurs in Eastern part of Chad. There is a risk of increase in cases given issues with access to clean water, sanitation, and hygiene products.[232] There is a particularly high risk of infection for those in camp settings, and for pregnant women, for whom mortality can be high. Large number of IDPs across various states of Sudan because of current conflict can further deteriorate the situation.[233]

Mpox: The total reported suspected mpox cases between 1 January 2022 and 4 April 2023 reached 378: this included 19 confirmed cases and one associated death. In total, 38 localities from 13 States reported suspected cases and 11 localities from six states reported 19 confirmed cases.[234] There are no confirmed cases from Sudan in 2024,[235] although a suspected case has been recently identified in Central Darfur in a child with travel history to Chad.[236] In addition, another suspected case has been identified in Khartoum. From 2024, there has been a resurgence of mpox in the Democratic Republic of Congo and surrounding countries, and the transmission to Sudan and neighboring countries is likely.

Meningitis: Parts of Sudan fall within the African “meningitis belt,” where the highest rates of meningococcal disease are recorded in the world. Between 15 April 2023 and 9 August 2024, 155 cases were reported from 10 states, with 20 associated deaths from five states (CFR 12.9%);[237] these are recorded as ‘viral meningitis’ but it is not clear that none of these have been meningococcus, as there is not systematic testing. Vaccination is suboptimal, and overcrowding and poor shelters increase the risk of carriage and of invasive meningococcal disease (IMD). The risk of severe disease is further compounded by malnutrition. Vaccination remains suboptimal since the onset of the conflict, and the availability of antibiotics for bacterial meningitis remains limited.

Diphtheria: The first documented diphtheria outbreak in Sudan dates to 1974.[238] Although routine DTP vaccination is part of the Expanded Programme on Immunization, there are still reported cases and outbreaks of diphtheria across the country.[239] The most recent outbreak occurred in 2019 with 105 reported cases, with most cases coming from one locality in South Darfur state.[240] Pre-conflict in 2022, diphtheria was considered as one of the high-risk hazards facing Sudan.[241] Since the escalation of violence on 15 April 2023 through 9 August 2024, a total of 26 cases of diphtheria have been reported from three states, although surveillance is very limited. According to the EPI schedule in Sudan, pentavalent (DTwP-HiB-HepB) vaccine is administered at six, 10 and 14 weeks. However, there remains a low vaccination coverage, particularly in hard-to-reach areas, and the coverage is below the herd immunity threshold. Coupled with limited access to health facilities and treatment options (particularly availability of antibiotics),and given limited global stocks of diphtheria antitoxin (DAT), outbreaks could result in potential higher severity and complexity in ensuring control.

Yellow Fever: Sudan belongs to the yellow fever zone, and large epidemics were reported in Sudan in 1940, 1959, 2003, 2005, 2012 and 2013. Sudan conducted a yellow fever risk assessment exercise in early 2013 and confirmed that the yellow fever virus was circulating in all parts of the country. Also, there have been reports of laboratory-confirmed cases from surrounding countries (e.g., Chad, South Sudan), and there remains a risk of transmission that needs to be addressed with vector control.

Technological and environmental health risks: In April 2023, WHO officials initially believed it was extremely dangerous when one side in the conflict seized the National Public Health Laboratory and asked technicians to leave. According to the WHO Rapid Risk Assessment that followed, all pathogens present in the laboratory were already present in the community. The risk of major community outbreaks due to leak of samples from the lab is low but exists.

Water, Sanitation and Hygiene (WASH)

Sudan did not meet the Millennium Development Goal (MDG) targets for water supply and sanitation and still has a long way to go to meet UHC by 2030.[242] WASH services have been provided to Sudan IDPs on an ongoing basis for years, but the situation has deteriorated due to a worsening economic crisis, non-functional or aging WASH infrastructure or conflict-destroyed infrastructure, decreased/insufficient revenue collections, poor budget allocation, and increased operation maintenance costs attributed to an increase in fuel prices.[243]

The 2020 Multi-Sector Need Assessment (MSNA) showed that about 25% of the water sources are not functioning and 70% of the population (around 28 million people) do not have access to basic sanitation services. Around twelve million people do not have access to toilets and thus openly defecate.[244]

Socio-economic Challenges

Prior to the outbreak of conflict, Sudan's economy was marred by rampant inflation and shortages of essential goods, leading to protests across the country. The conflict has worsened the economic crisis.[245] Sudan's economy has experienced a sharp downward deterioration, with increased budget deficit, driven by a reduction in public revenues and a disruption in exports due to the fighting.[246] Supply chain disruption has led to a decline in domestic production and economic activities.[247] This has also been exacerbated by widespread looting and destruction of businesses, markets, factories, and warehouses.[248]

Nearly half of Sudan's population is unemployed, while the Sudanese pound has lost at least 50% of its value since the start of the conflict. [249] In Khartoum, factories, banks, shops and markets have been looted or damaged, further reducing the population's access to goods, services and cash.[250]People living in conflict zones have faced skyrocketing prices of food and non-food items, reduced purchasing power, and limited livelihood opportunities.[251]

As a result of the conflict, all social security schemes have been suspended.[252] Consequently, household incomes are expected to decline by over 40% in both urban and rural areas, leading to an estimated increase of 1.8 million people living in poverty compared to before the conflict, likely impacting significantly on persons already in a vulnerable situation. [253]

People have also been facing pockets of internet and communication blackouts, leaving millions struggling to contact their families, seek safe zones, access essentials and use mobile money services. In February 2024, all three of Sudan's main internet operators went offline, leaving almost 30 million Sudanese without internet or telephone access for more than a month.[254]

Protection Risks

Gender-Based Violence (GBV): Conflict-related GBV has been long perpetrated as a weapon of war, creating a climate of fear and repression across the country. Forms of sexual violence documented in Sudan include trafficking, sexual slavery, genital mutilation, and forced marriage, with the most prevalent cases involving rape and gang-rape.[255]

The U.N. reports that 53% of displaced persons in Sudan are women and girls and that more than 6.7 million people in Sudan are at risk of GBV. Furthermore, intimate partner violence, sexual exploitation and abuse, and trafficking in persons are widespread and increasing.[256] With persistent food insecurity among displaced families, particularly female-headed households, widows, adolescent girls, and people with disabilities, the adoption of negative coping mechanisms for survival is on the rise. In a food-insecure environment, the risk of GBV increases. [257]

Women and girls in conflict zones are facing escalating protection threats and reduced access to basic services, such as essential healthcare.[258] Armed groups have terrorized women and girls, and both warring parties have blocked them from getting aid and support services, compounding the harm they face.[259] MSF reports shocking cases of sexual and gender-based violence, especially in Darfur. An MSF survey of 135 survivors of sexual violence treated by MSF teams between July and December 2023 in refugee camps in Chad close to the Sudanese border found 90% were abused by an armed perpetrator, 50% were abused in their own homes and 40% were raped by multiple attackers.[260] These findings are consistent with testimonies from survivors still in Sudan, demonstrating how sexual violence is being perpetrated against women in their homes and along displacement routes, a characteristic feature of the conflict. [261]

However, due to limited access to services as well as fear of retaliation and stigma, under-reporting of GBV incidents remains high. The trend emerging from analysis shows that 56% of GBV incidents reported (by Sudanese refugees or refugee returnees) in Ethiopia and South Sudan occurred prior to displacement or during their flight.[262]

More broadly, there are reports that the protection space is shrinking for refugees and asylum seekers as the conflict escalates and move to new areas. With many stranded in conflict hotspots, there are reports of violations of the civilian nature of asylum amidst widespread mobilization and armament of civilians. Arbitrary arrest and detentions, deportations, and restrictions to freedom of movement continue to rise. A high prevalence of gender-based incidents and grave violations of children's rights are being reported. Driven largely by insecurity and limited access to humanitarian assistance, an increase in return of refugees in adverse circumstances and onward movement has been observed.[263]

Child Protection: About 14 million children need humanitarian aid and protection assistance, lacking access to food, water, shelter, electricity, education and health care. Additionally, about 19 million children in Sudan were out of school. A report of the UN Secretary-General on Children and Armed Conflict in July 2024 found that 2168 grave violations against 1913 children were verified between 1 January 2022 and 31 December 2023. This represents a shocking increase compared to the previous reporting period. Killing and maiming (1525) was the highest verified violation, followed by the recruitment and use (277) and the rape and other forms of sexual violence against children (153).[264] A summary of key protection indicators is displayed in the below box (data are the most recently available, from various years):

CHILD PROTECTION INDICATORS[265]	Sudan	Year	Source
Percentage of women (aged 20-24 years) married or in union before age 18	34%	2022	UNICEF
Percentage of children (aged 5-17 years) engaged in child labour (economic activities and household chores)	18%	2022	UNICEF
Percentage of children (aged 1-14 years) who experienced any physical punishment and/or psychological aggression by caregivers	64%	2022	UNICEF
Percentage of girls and women (aged 15-49 years) who have undergone female genital mutilation	87%	2022	UNICEF

Mine Action: The widespread use of conventional weapons including field artillery, mortars, air-dropped weapons and anti-aircraft guns has left copious unexploded ordnance (UXO) in Khartoum and other urban areas.[266] In January 2024, for the first time since the conflict began, civilian deaths were reported to have been caused by landmines. On 21 January 2024, 10 civilians were reportedly killed when their bus ran over a landmine in River Nile state.[267]

Education

As a result of the conflict, the enjoyment of the right to education continues to be affected. On 6 November 2023, UNICEF reported that an estimated 19 million children in Sudan, nearly all school-aged children, had been deprived of education.[268] At least 10 400 schools have been forced to close in conflict-affected areas in eight states across the Darfur, Khartoum and Kordofan regions.[269] Additionally, 171 schools were reportedly being used as emergency shelters for the displaced population in areas less affected by the conflict.[270] The closure of schools and universities for long periods because of the war has also led to serious psychological effects among students.[271]

HEALTH SYSTEMS STATUS AND LOCAL HEALTH SYSTEM DISTRIBUTIONS

Pre-crisis health system status

Impact of the COVID-19 crisis: The COVID-19 pandemic has been a burden to the already fragile health system despite the relatively low (reported) case load, due to competition for resources needed in other parts of the health system.[272] The fragile surveillance system has low coverage in all states and was unable to cope and absorb the needs for enhanced surveillance in a situation of countrywide community transmission.[273] No effective tracing system was implemented during the pandemic.[274] Due to the socioeconomic crisis and the rapid devaluation of the Sudanese Pound, funds for operating expenses and running costs (fuels and electricity) for health structures are scarce and salaries are not paid regularly, affecting the delivery of health services.[275]

Expenditure: The allocation of public expenditure to the health sector, as a share of total public spending, fluctuated between 7% and 8% during the last decade (until 2022).[276] Health expenditure predominantly takes place at the state level, amounting to 87%.[277] Before the crisis, it was found that people pay a considerable amount as out-of-pocket health expenditure (about 74% of total expenditure on health), while general government health expenditure represents only 26%).[278] During 2020, the costs of health services increased by 90%, further increasing the out-of-pocket expenditures.[279]

Universal Health Coverage: Sudan's UHC Service Coverage Index was reported at 44% in 2017.[280] There is inequality of access and uptake of services among and within states, and fragmented training of health promoters at the community levels. In general, there was underutilization of primary health centres (PHC) services, especially noted in public centres, and the justification according to reviewers was due to a gap in having comparable health service standards/quality between government health providers on one hand and the private and nongovernmental facilities on the other. Without a strong PHC system, it is difficult to address the challenges posed by both communicable and non-communicable diseases or progress toward universal health coverage.[281]

Geographic inequalities: Coverage of reproductive, maternal, neonatal, and child health services remains consistently lower in rural areas.[282] By looking at all aspects of the health system and health indicators, there are remarkable discrepancies between socioeconomic strata in states.[283] The lack of equity is apparent even within states, between rural and urban areas, and between high-income and low-income.[284] Inequity also manifests in the distribution of inputs to the health system, including human resources, health facilities and health expenditure.

Healthcare workers: There is a disparity in the distribution of healthcare personnel between the public and private sectors and between urban and rural areas.[285] Moreover, the high turnover and migration of health professionals continue to threaten the capacity of the FMOH to respond to the increased demand for health services. There is a low nurse-to-doctor ratio, which affects the running and quality of care. There are 33.5 nurses and midwifery personnel and 2.8 physicians per 10 000 population, according to 2021 data.[286]

Key information on disruption of key health system components

ACCESS TO HEALTHCARE	DISRUPTION TO SUPPLY CHAIN	DAMAGE TO HEALTH FACILITIES	ATTACKS AGAINST HEALTH
About 65% of the population lack access to healthcare according to OCHA (February 2024) .[297]	8 out of 18 states are covered with medicines and medical supplies provided by cluster partners (February 2024).[298]	About 80% of hospitals in the most conflict-affected areas are not working (June 2024).[299]	Since April 2023 till August 2024, 105 attacks on health care– resulting in 183 deaths and 125 injuries (August 2024).[300]

<u>In crisis health system status</u>

Health Infrastructure and Functionality: Sudan's health system is hanging by a thread. It has been devastated by the effects of war, displacement, disease outbreaks, severe shortages of medical supplies, and a shortage of cash to run operations and pay salaries. The health system remains functional through the support of health partners and the dedication of health workers who risk their lives daily to help others. [287]

As of June 2024, about 80% of hospitals in the most conflict-affected areas and 45% of health facilities in five states are not working, and the remaining ones are overwhelmed with people seeking care.[288] This is an increase from December 2023, when a Health Resources and Services Availability Monitoring System (HeRAMS) data collection was undertaken in five states (Khartoum, Kassala, Red Sea, White Nile and Gedaref), which found that 45% of health facilities were fully functional, 10% were partially functional and 45% were non-functional.[289] Causes of non-functionality were mainly attributed to lack of staff, security, physical access, equipment, medical supplies, finances and damage to health facilities. In terms of building damage, 80% were not damaged and 16% were partially damaged. Water was available in 50% of health facilities, partially available in 38% of health facilities, and not available in 12% of health facilities. Power was available in 44% of health facilities, not available in 48%, and partially available in 8% of health facilities.[290] This is supported by reports from UNHCR in February 2024 which stated that hospitals in conflict-affected states are impacted by ongoing attacks, combined with insecurity, shortages of medical supplies, and lack of cash to meet operational costs and salaries.[291]

As a result of the closures, critical services – including maternal and child health care, the management of severe acute malnutrition and the treatment of patients with chronic conditions – have been discontinued in many areas. People are dying from a lack of access to essential health services and medicines.[292]

Access to Healthcare: Due to the conflict, as of February 2024, about 65% of the population lacked access to healthcare, according to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).[293] Healthcare in Sudan also heavily relied on Khartoum, as almost 80% of health services were based in the city, meaning it affected the entire system when Khartoum's healthcare was debilitated. This direct effect of the conflict, which has affected both civilians and infrastructure, has further eroded the stability of the system.[294] Due to the crisis and the rapid devaluation of the Sudanese Pound, funds for operating expenses and running costs (fuel and electricity) for health structures are scarce and salaries are not paid regularly, affecting the delivery of health services.[295]

The arrival of the rainy season in Sudan and neighbouring countries has worsened challenges in accessing health care for affected populations, and it will also impact the ability of WHO and its partners to deliver humanitarian assistance. Urgent action and ceasefire are needed to contain an unfolding humanitarian catastrophe. [296]

Medical Supplies and Medicine: While the conflict has primarily affected health facilities in the Khartoum area, its repercussions have extended to all states due to the country's reliance on Khartoum for medical supplies.[301] In June 2023, medical supplies in country were estimated at about 25% of the needs, and for several months there has been a general crisis in medical supply at all levels of the health system.[302] In February 2024, the Sudan

Health Cluster report that just eight out of 18 states are covered with medicines and medical supplies provided by cluster partners.[303] For example, one Darfur State Ministry of Health reported that it had not received any medical supplies from the central supply in the past year. Pharmacies are either depleted of supplies or drastically increasing prices, rendering much essential medicine unattainable for those in need. Consequently, individuals with chronic illnesses are experiencing and even dying from severe complications, most notably those with diabetes, hypertension, cancer, and kidney failure.[304]

Healthcare workers: According to the Safeguarding Health in Conflict Coalition (SHCC), between January and August 2024, there were 38 health workers killed in Sudan, compared to 56 in 2023 and 13 in 2022, while at least 12 were kidnapped. [305] Health workers are reported to be deliberately and systematically attacked, including while working inside hospitals, clinics, or their homes.[306]

Sudan's health workers continue to provide life-saving care – working in incredibly difficult conditions – driven by their commitment to serve the millions of people in need of urgent care. Yet their tenacity and dedication are rewarded with bombardment, harassment, intimidation, injury and death. Health workers should not have to risk loss of life or limb as they strive to save others.[307]

The International Federation of Red Cross and Red Crescent Societies (IFRC) confirmed the deaths of two Sudanese Red Crescent Society (SRCS) volunteers in July 2024, when both volunteers were tragically killed in the line of duty in Sennar State. Since the conflict in Sudan began in mid-April last year, the SRCS has lost six volunteers.[308]

An MSF staff member was killed by a shell strike in El Fasher city on 25 May 2024.[309] In July 2024, MSF reported the evacuated of its team from a major medical facility in Khartoum, Turkish Hospital, following a series of violent incidents endangering staff. Multiple violent incidents were reported to have taken place inside and outside the premises and the lives of MSF staff were repeatedly threatened. Many have been threatened with arrest. In early June 2024, one MSF employee was arrested inside the hospital by two armed men, taken to an unknown location, and severely beaten.[310]

In February 2024, it was reported that civil servants across Sudan, including medical staff, have reportedly either not received their salaries or received only a small portion since the beginning of the conflict.[311]

Healthcare attacks: As of August 2024, since the war erupted in April 2023, WHO has verified 105 attacks on health care – including on health facilities, ambulances and transport, assets, patients and health workers – resulting in 183 deaths and 125 injuries.[312] Among these, the 39 attacks on health care verified since 1 June 2024 (when the Surveillance System for Attacks on Health Care was revitalized) have led to the deaths of 34 health workers and patients, including children, and injuries to 77 people.[313] Access to health care is already severely constrained in Sudan due to the war that has been raging for over a year.[314]

HUMANITARIAN HEALTH RESPONSE

The 2024 Sudan Humanitarian Needs and Response Plan (HNRP) requires $2.7 billion to provide life-saving multi-cluster and protection assistance to 14.7 million people across Sudan in 2024.[315] The Health Cluster will require US$ 178 million to meet the health needs of the 4.9 million people that make up the highly vulnerable target population.[316] Due to challenges with security, access, and resource availability, only one third of those in need are being targeted in 2024.[317]As of July 2024, 1.6 million of the target was reached.[318]

Along with health partners, WHO is working intensively to coordinate the health response in Sudan; reinforce disease surveillance, including through the introduction of WHO's EWARS Mobile system in hard-to-reach areas; and distribute lifesaving medical supplies to people in need, despite the hampered access and insecurity. WHO is also working closely with the health authorities in the neighbouring countries to strengthen disease surveillance and provide health care to the displaced.[319]

In 2009, the Sudan Health Cluster was established to coordinate humanitarian activities. Currently there are 73 partners in the Health Cluster, including two donor government agencies, 31 INGOs and 27 NNGOs.[320] In August 2024, the Health Cluster is currently implementing a Famine Prevention Plan, targeting 14 new localities with IPC 5/4 in 10 States (715 000 people).[321]

INFORMATION GAPS AND RECOMMENDED SOURCES		
Area	**Gap**	**Recommended tools/guidance for primary data collection**
Health status & threats for affected population	Surveillance data	Early Warning Alert and Response (EWAR) surveillance system Analysis of laboratory surveillance data Routine environmental monitoring
	Mortality (disease-specific)	Mortality survey Facility-based surveillance Prospective mortality surveillance
	Child health - malnutrition data	Anthropometric surveys (e.g., SMART) Desk-based nutritional risk assessment
Health resources & services availability	Information on Health services availability, disruption and functionality in several areas	HeRAMS (WHO)
	Limited information on health workers availability	HeRAMS (WHO)
	Limited information on attacks on healthcare	Surveillance System for Attacks on Health Care (SSA) (WHO)
Humanitarian health system performance	Information on quality of humanitarian health services provided to beneficiaries (accountability to affected populations)	Beneficiary satisfaction survey Strengthen monitoring framework and reporting on activities (distribution, service delivery, surveillance, etc.)
	Information on limited number of health partners in some regions	Health Cluster / OCHA / matrix 3/4/5Ws

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