treatment. Ceasing attacks on civilian infrastructure, rehabilitating water and sanitation systems, safeguarding health facilities and laboratories, ensuring safe humanitarian access to essential services such as clean water and health care, and bolstering vaccine deployment are essential strategies. Without systemic protection of civilian lifelines, each cholera wave will be a harbinger of the next—and prevention will remain out of reach.

We declare no competing interests.

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Innovation in health and humanitarian aid: lessons from Sudan

Since civil war broke out in April, 2023, nearly half of Sudan's 50 million people now face acute food insecurity, 14·5 million people have been forcibly displaced, outbreaks of multiple infectious diseases have been reported, and thousands of women and children have experienced sexual violence.[1] Delivery of essential services is insufficient, with more than 70% of health-care facilities in conflict-affected areas damaged or destroyed, and aid delivery systematically obstructed by both sides of the conflict.[1] However, the international response to the crisis caused by this conflict has been inadequate, with only 15% of Sudan's 2025 humanitarian funding needs having been met as of July, 2025.[2]

Across Sudan, communities have mobilised community-led humanitarian networks. The country's emergency response rooms (ERRs) and community-run food kitchens, known as *Takayaa* (singular: *Takiya*), are locally led alternatives to conventional aid systems.

ERRs evolved from pre-war resistance committees and draw on the cultural practice of mutual aid known as *Nafeer*. In 2024, more than 360 ERRs were operating across Sudan, providing decentralised support including medical care, medications, childcare, safe drinking water, and psychosocial services, including counselling for survivors of sexual violence.[3] Each ERR responds to local needs and allocates roles for volunteers based on their professional skills and personal abilities.[3,4]

A *Takiya* is often co-located with ERRs and offers basic nutrition for areas facing acute food shortages. Hadreen (a Sudanese organisation running *Takayaa*) and researchers from the London School of Hygiene & Tropical Medicine have partnered to collect and organise data to measure the nutritional requirements of people accessing the *Takayaa*.[5]

ERRs and *Takayaa* are decentralised, and not affiliated with any of the warring parties, making them more resistant to theft or co-optation by warring parties. However, they remain almost entirely funded by local donors and the Sudanese diaspora, leaving them chronically under-resourced and placing volunteers at unsustainable risk of physical harm, psychological harm, and exhaustion.[4]

Global health and humanitarian agencies should expand existing support and partner with ERRs and *Takayaa* by providing financial and logistical support to strengthen their operations. International actors should also help these organisations to document the effects of the war and the effectiveness of their response. These actions would allow targeted and more effective delivery of aid and medical care within Sudan and provide important evidence for other conflict settings.

The world has largely ignored Sudan's humanitarian crisis. We must not ignore the country's humanitarian innovation.

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Sudan's measles crisis and the global zero-dose gap

When vaccines stop, measles returns. Since 2023, Sudan has witnessed several measles outbreaks, each a predictable outcome of systemic immunisation failure in a nation engulfed by civil war. Once a preventable disease, measles has re-emerged as a leading killer of children in conflict-affected regions of Sudan.

The first confirmed outbreak occurred in March, 2023, with clusters in South Kordofan and West Darfur among displaced populations. In Delling, the co-circulation of measles and rabies was reported in malnourished children living in crowded shelters without access to routine vaccines.[1] By mid-2023, further suspected outbreaks were recorded near Kadugli and in refugee camps, though insecurity, inaccessibility, and fuel shortages delayed verification of and response to these outbreaks.[2]

In April, 2024, a second outbreak emerged in White Nile State. Camps such as Jouri and Al Kashafa reported dozens of laboratory-confirmed cases among children younger than 5 years. Field reports described a collapse in cold chain infrastructure and insufficient numbers of health-care workers capable of mounting a response.[3] A sustained epidemic followed between June, 2024, and May, 2025. Médecins Sans Frontières treated more than 9950 measles cases across all states in Darfur, with 2700 severe cases and at least 35 deaths—many of them children.[4] Within this prolonged epidemic, a laboratory-confirmed surge in West Darfur in April, 2025, saw 10 of 15 samples test positive, highlighting continued transmission in hard-to-reach areas amid weakened surveillance systems.[5]

These outbreaks unfolded during a near-total health system collapse. Since April, 2023, more than 14·5 million people have been internally displaced, and less than 30% of health-care facilities remain operational.[6] Vaccination coverage has dropped sharply—from 75% in 2022, to 57% in 2023—leaving an estimated 701 000 children unvaccinated and highly vulnerable to disease.[7] Most of these zero-dose children reside in regions heavily affected by conflict, displacement, and famine.

This crisis is emblematic of a larger global trend. In 2023, the number of zero-dose children worldwide rose to 14·5 million, reversing years of progress.[7] According to the Global Burden of Disease 2023 study, Sudan is now among the top eight countries contributing to more than half of the global zero-dose burden, and would need to surpass the 95–99th percentile of historic vaccine scale-up rates to meet the Immunization Agenda 2030 target.[8]

Sudan's measles resurgence should not be normalised. WHO's Big Catch-Up campaign should prioritise Sudan and support flexible, district-level immunisation strategies that account for insecurity, displacement, and logistical fragmentation. These strategies should include the deployment of fixed outreach points in displacement hubs, rapid-response immunisation teams trained in conflict-sensitive delivery, and investments in re-establishing temperature-stable, cold chain systems with solar-powered refrigeration. Donor governments, Gavi, and humanitarian agencies should also ensure sustained vaccine supply chains, negotiate humanitarian access with armed actors, and fund decentralised immunisation surveillance units capable of early outbreak detection and targeted campaigns.

Measles in Sudan is no longer a sporadic outbreak—it is an epidemic born of policy failure, silence, and stalled global solidarity. Without urgent action, it will continue to claim the lives of children whose only risk was being born into conflict.

We declare no competing interests.

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