

# Measles: South Sudan's battle against a preventable killer

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## OVERVIEW

Worldwide, measles is a significant cause of preventable deaths among children below the age of five years. Globally, in 2015, it accounted for 134,200 deaths which was equivalent to 367 deaths daily or 15 deaths every hour.<sup>[1]</sup> The vast majority of these deaths occur in low-income countries, especially sub-Saharan Africa.

In South Sudan, measles epidemics contribute significantly to morbidity and mortality among the unvaccinated children who have the highest share of measles cases; the magnitude of the measles burden can be illustrated by the frequent countrywide outbreaks that affect many different parts of the country. These outbreaks claim many lives, as a result of fatal complications mainly due to pneumonia, gastroenteritis with severe dehydration and severe acute malnutrition. Children are the most vulnerable. Those who survive measles can suffer from the impact of the disease throughout the rest of their lives. Effects like visual impairment, and physical or mental disability can be a consequence of measles-related encephalitis/meningitis.

Given the high infectivity (90% of those exposed to the measles virus), potentially deadly complications (10 - 30% of cases), and lack of curative treatment, prevention remains the mainstay approach for measles control and elimination.

Access to standard health care, a strong surveillance and reporting system, sustainable and efficient routine immunization and high coverage (as high as 95%) during mass vaccination campaigns plus introduction of a second dose as part of routine immunization<sup>[2]</sup> are all prerequisites for a successful programme that aims at measles control and elimination. Unfortunately, there are many obstacles that hinder the aspiration of measles elimination. South Sudan seems to be some steps away from this dream.

### The scope of the problem: Reflection on the 2018-2019 measles outbreaks

South Sudan is widely considered to be a nation that has suffered from a high prevalence of measles for a long time, both before and after independence. The eruption of civil war has led to a massive internal and external displacement of the population, with dire impact on health. One consequence was a further destruction of the already weak health system, with either no, or limited, access to healthcare, poor living conditions and food insecurity. All these factors have significantly increased the impact of measles on the country.

In the past two years, South Sudan has been hit by waves of confirmed measles outbreaks affecting 16 counties across the country. In addition, measles has contributed to about one-fifth of the total alerts related to epidemic-prone diseases.

In 2018, measles outbreaks were declared in nine counties of different states, and by the beginning of 2019, another seven were confirmed. Noticeably, areas with a high population density such as Internally Displaced People (IDP) camps, including major towns like Juba and Wau, constituted around 25% of the total areas. According to 2019 estimates, the vast majority (more than 85%) were children under the age of five years. Figures on case fatality were not consistently reported and probably did not fairly reflect the actual mortality rate. However, it is reasonable to consider multiple factors that could conceal the true figures including low access to health services (less than 50%) and poor infrastructure.<sup>[3]</sup>

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Figure 1. A child in Aweil receives a measles vaccination. (Credit William Davies)

A closer look into measles trends in 2018 and 2019, not only demonstrates the ongoing burden of the disease on South Sudan, but provides lessons and exposes challenges that hinder the very objectives of the South Sudan Measles Strategy. These lessons, when learned properly, can provide the basis for long-term solutions to the current problems that impede reducing measles-related child morbidity and mortality.

**An ounce of prevention worth a pound of treatment: Immunizations are the best option**

Acquired life-long immunity through vaccination has proved to be the most effective method of measles prevention.<sup>[2]</sup> The current measles' live attenuated vaccine, which has been in use for nearly half a century, is not only considered effective and safe but relatively inexpensive as one dose costs around one USD.

During 2000-2015, the global reported measles incidence declined by 75% from 146 to 35 cases per million population. In 2015, there were an estimated 134,200 Measles deaths globally, represented 79% decline since 2000.<sup>[4]</sup> All countries have to focus on strong routine immunization programmes and regular mass immunization campaigns to catch-up non-vaccinated children or/and deliver a second dose as their strategy to control and eliminate the disease.

South Sudan, together with international health partners, has been working hard to achieve its universal goal of reducing child mortality with measles control being one of its pillars. Despite the exerted efforts, South Sudan has many challenges to tackle on its way towards attaining the three milestones set by World Health Organization in 2010, to be achieved in 2015. These are:

- increasing routine coverage with the first dose of measles-containing vaccine (MCV1) by more than 90% nationally, and more than 80% in every district,
- reducing and maintaining annual measles incidence to less than 5 cases per million, and
- reducing estimated measles mortality by more than 95% from the 2000 estimate.

According to South Sudan EPI Vaccination Coverage Survey in 2017, only 18.9% of children aged 12-23 months had completed their vaccinations before their first birthday (measles vaccination is scheduled at age 9 months); the measles vaccine national coverage was 19.2% with the total routine immunization coverage being estimated as less than 50%.<sup>[5]</sup>

**HURDLES TO MEASLES ELIMINATION IN SOUTH SUDAN: MSF EXPERIENCE IN AWEIL**

In May 2019, Doctors Without Borders (MSF), in collaboration with the South Sudan National Ministry of Health, UN Agencies, and other international NGOs, conducted a reactive mass vaccination in response to a measles outbreak in Aweil Centre.<sup>[6]</sup> The target population was children aged 6-59 months in Aweil town and the neighbouring villages. The goal was to interrupt transmission and prevent possible further outbreaks. A total of 27,411 children were targeted, and 26,477 of them received measles vaccination with a coverage of 97%.

One concern of the campaign was the lack of recent and accurate statistics at the state level. The latest census was in 2011, and the population-related figures were obsolete. The target population of the campaign was based on either projections or simply outdated information. This raised a major concern about the actual estimated coverage.

During the vaccination response in Aweil, the team encountered several challenges, many of which are the same as are found generally in South Sudan's healthcare. These included:

- Low access to healthcare, either due to scarcity of adequately equipped health facilities with immunization services, or parents traveling long distances in order to reach the nearest primary health care centre or unit. This was one of the major causes of poor routine vaccination.

- Weak surveillance and reporting system at all levels. This affects timely alert, declaration and response to outbreaks.
- Inadequate clinical case management mainly due to a lack of a sustainable drugs supply (for example, vitamin A which can improve immunity). This can contribute to an increase in morbidity and the case fatality rate.
- The lack of infrastructure, particularly during the rainy season, which is another factor that impedes the vaccination of children.

Security was not a concern during the May 2019 campaign in Aweil; however, at different points during the civil war, security has created serious access issues for the population.

Strengthening the public health sector and adequate distribution of easily accessible, well-resourced primary health care facilities, together with national investment and direct involvement in the expanded programme on immunization (EPI) response, and mass vaccination campaigns will, if achieved, positively contribute towards winning the battle against measles in South Sudan.

### **TO WIN THE BATTLE: AN INVESTMENT IN ROUTINE IMMUNIZATION AND OUTBREAK RESPONSE ARE THE KEYS TO SUCCESS**

Despite the tangible improvement in reduction of deaths among children under-five years of age, South Sudan still leads in terms of child mortality. Measles control remains an important element in reducing these deaths. As the challenges are well known, and solutions seems to be straightforward, advocacy on dealing with the root cause of poor vaccination coverage is essential.

**The priority now needs to be on improving the healthcare system with integrated and easily accessible and tailored immunization activities through the Expanded Programme on Immunization (EPI) services, introducing the second dose schedule, and reinforcing resources and training at counties/districts level to ensure a timely detection response to outbreaks.**

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Figure 2. MSF staff in Aweil during the measles campaign. Santino Ruop Jok (Nurse aid), Anyama Stephen Agasi (Clinical Officer) and Yel Yel Anei (Medical interpreter). (Credit William Davies)

### References

1. World Health Organization: Measles. WHO Regional Office for Africa. <https://www.afro.who.int/health-topics/measles>
2. World Health Organization Measles <https://www.who.int/immunization/diseases/measles/en/>
3. Government of South Sudan 2019. Update on the measles situation and control strategies in South Sudan. <https://reliefweb.int/report/south-sudan/update-measles-situation-and-control-strategies-south-sudan>
4. World Health Organization Measles position paper April 2017. <https://apps.who.int/iris/bitstream/handle/10665/255149/WER9217.pdf;jsessionid=6360B8AA5928F10D11EEB64976C9C34B?sequence=1>
5. South Sudan EPI Coverage Survey 2017. <https://www.unicef.org/southsudan/media/1876/file/South-Sudan-2018-EPI-Coverage-Survey-2017.pdf>
6. Ministry of Health, Government of South Sudan. Aweil Reactive Measles Campaign Report May 13-23, 2019. [https://www.afro.who.int/sites/default/files/2019-06/Measles%20Outbreak%20Situation%20Report\\_issue%20%236-30th%20May%2C%202019...pdf](https://www.afro.who.int/sites/default/files/2019-06/Measles%20Outbreak%20Situation%20Report_issue%20%236-30th%20May%2C%202019...pdf)

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