Factsheet: Sierra Leone & Preventive Ebola Vaccine

For any questions or follow-ups, please contact media@gavi.org

Ebola vaccines – Historic progress against one of the world's deadliest infectious diseases

Overview

- Ebola has historically impacted sub-Saharan Africa, causing deadly outbreaks and high case fatality rates (25-90%). It also represents a significant global health security risk, demonstrated during the 2014 West Africa outbreak.
- Healthcare workers (HCWs) and frontline workers (FLWs) are at high risk of infection, especially early in outbreaks.
- When the 2014 West Africa outbreak began, there were no approved vaccines. Now there is a global stockpile accessible to any country in the world, and it has transformed our ability to fight the disease. **Sierra Leone, alongside Liberia and Guinea, was among the three countries most severely affected by the 2014 West Africa Ebola outbreak.**
- Sierra Leone will become the first country, among the three most severely affected ten years ago by the West Africa Ebola outbreak, to launch a nationwide preventive Ebola vaccination, targeting 20,000 frontline workers who will receive a single dose of Ebola vaccine, to officially take the next step – with preventive vaccination of those most at risk.
- **Impact on health systems:** Liberia lost 8% of its HCW to Ebola; and Sierra Leone and Guinea lost 7% and 1%, respectively.
- **Impact on communities:** When health workers fall ill, it increases fear among the population and hampers response efforts and disrupts routine healthcare. In addition, there is often stigma and community mistrust associated with Ebola, which arises from its mode of transmission, the persistent risk of infection from survivors, the lasting physical and psychological effects many survivors suffer and also perceived risk coming from front-line workers like care providers and burial workers.
- **Impact on economies:** Beyond the tragic loss of life, the 2014 outbreak highlighted the negative impact that Ebola can have on economies and societies. The World Bank estimated the direct economic losses in Guinea, Liberia, and Sierra Leone at over $3 billion, with regional impacts in West Africa reaching up to $50 billion. The epidemic overwhelmed health systems, reduced access to routine healthcare, and had lasting economic effects.

About Ebola

- Ebola was first identified in 1976 in two nearly simultaneous outbreaks in what is now South Sudan and the Democratic Republic of Congo (DRC).
- The outbreak in DRC took place in a village near the Ebola River, which gave the name to the disease.
- In these outbreaks and the following outbreaks, we learnt about the clinical course, the high mortality, the mode of transmission and the main components of Ebola disease control that include community engagement, surveillance, contact training and isolation of infected individuals and infection prevention and control in the treatment centers.
- It is a rare but severe illness, caused by ebolaviruses found primarily in sub-Saharan Africa.

- Four of the six identified species cause disease in humans, with the Zaire strain causing most outbreaks.
- Transmitted through contact with infected animals, sick/deceased people. Symptoms include sudden fever, headache, muscle pain, vomiting, and bleeding.
- After the initial 1976 outbreaks, over 20 additional Ebola outbreaks were reported in Africa where the disease is present in the zoonotic reservoir (primarily bats and non-human primates) up until 2013. Most were limited to rural areas and contained effectively.
- However, in 2014, we saw a major shift with the West African Ebola outbreak, which affected urban centers in Guinea, Liberia, and Sierra Leone. This outbreak, with over 20,000 cases and more than 11,000 deaths, spread beyond West Africa, and put the world on high alert.

Fast-tracking the development and availability of Ebola vaccines

- In 2014, during the deadly 2014–2016 West Africa Ebola outbreak, which took over 11,000 lives and created global health security concerns as cases spread to countries outside the African continent, Gavi announced its commitment to purchase any suitable vaccine candidates, sending a strong and important signal to industry to invest in the rapid development of vaccines.
- In 2016, Gavi signed an Advance Purchase Commitment (APC) with Merck that enabled 300,000 investigational doses to be deployed in outbreaks, pending the availability of a WHO-prequalified product. These doses were subsequently used in impacted countries, helping provide data on the extremely high efficacy (near 100%) of the Ervebo vaccine.
- In 2019, upon recommendation by WHO SAGE, Gavi formally approved the launch of an Ebola vaccination programme and establishment of a global Ebola vaccine stockpile of 500,000 doses, available for all countries in the world to access within days.

About the Gavi-funded stockpile of Ebola vaccines

- Gavi established and funds the global stockpile of Ebola vaccines. Since 2021, the stockpile has maintained 500,000 doses to ensure equitable, timely and targeted access to doses for emergency outbreak response.
- This vaccine stockpile can be accessed by any country in the world in the event of an outbreak, For lower-income countries, Gavi covers the cost of vaccines, injection devices, transportation and rollout.
- The stockpile currently contains the Ervebo vaccine, priced at around US$ 100 per dose. Its use in outbreak response is managed by the International Coordinating Group (ICG) on vaccine provision. UNICEF, with Gavi's financial support, manages vaccine procurement and delivery for both outbreak response and preventive vaccination.
- Since 2021, nearly 146,000 doses have been shipped from the stockpile through 2023, 95% have been repurposed for preventive vaccination of high-risk groups, and 5% used in outbreak response.
- To date, DRC has received the largest number of vaccine doses, 111,000, followed by Uganda at 23, 460 and Guinea-Bissau 11,170 doses.

The evolution to preventive vaccination

- With vaccination, countries' ability to control outbreaks and cut down on cases and deaths has dramatically improved.
- Given the impact on health and frontline workers as well as health systems and economies, as well as increasing evidence of viral resurgence in survivors posing an outbreak threat, the Gavi, WHO and others began considering preventive vaccination.
- In June 2024, Gavi officially launched a preventive Ebola vaccination program, aimed at protecting critical healthcare and frontline workers in high-risk countries, reducing further spread within communities and globally, and ensuring health systems remain protected.
- Gavi funds preventive vaccination in high-risk countries following WHO's Strategic Advisory's Group of Expert's recommendation for use in at-risk populations. This decision follows an analysis data on effectiveness, duration of protection, and vaccine supply availability.
- Vaccines from the stockpile that are available due to relatively low demand for outbreak response – a positive development in the ability to control the disease – are used to support the preventive programme.

Details on preventive vaccination

- **Target population:** At-risk Health care workers and Frontline workers
- **Who is eligible:** Gavi-eligible countries at high risk or neighbouring countries can apply (Tier 1: Countries with previous EVD cases; Tier 2: Countries bordering tier 1 countries) – currently 18 countries in total
    - **Risk tier 1:** Countries that have previously reported EVD cases (including imported cases): Republic of the Congo, Democratic Republic of the Congo (DRC), Guinea, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Uganda
    - **Risk tier 2:** Countries that share a border with a country that has experienced a EVD outbreak (spillover event): Burundi, Cameroon, Central African Republic (CAR), Côte d'Ivoire, Guinea-Bissau, Rwanda, South Sudan, United Republic of Tanzania, Zambia
- **What Gavi supports:** Vaccines, injection devices, operational cost grants, technical assistance for healthcare worker / frontline worker vaccination. No co-financing required.
- Next country planning to rollout Ebola preventive vaccine after Sierra Leone is currently estimated to be Central African Republic (TBC)

Details on Sierra Leone's preventive vaccination

- **Historic first:** Sierra Leone will become the first country, among the three heavily hit ten years ago by West Africa Ebola outbreak, to launch a nationwide preventive Ebola vaccination campaign targeting frontline workers.
- **Dates:** The vaccination campaign is expected to start on December 5 up to December 15, with rollout across 16 districts in Sierra Leone.
- **Target population:** At-risk Health care workers and Frontline workers

- **Vaccine:** This campaign will use the Ervebo vaccine.

About Ebola vaccines

- Two WHO-prequalified vaccines: Ervebo (1-dose) and Zabdeno/Mvabea (2-dose) protect against the Zaire strain.
- Cannot contract EVD from the vaccine; it only contains a gene from the virus. No cross-protection against other strains or e.g. Marburg.
- The vaccines are used both for ring vaccination (vaccination of contacts of infected individuals; ERVEBO confers protection after one dose) and pre-exposure vaccination of high-risk populations (Zabdeno/Mvbea is recommended for preventative only in areas of lower risk for Ebola/areas neighbouring an outbreak as the full regime requires 2 doses administered 56 days apart.
- The vaccines have demonstrated high efficacy as well as a good safety profile.
- Mild to moderate side effects for 3-5 days are expected after vaccination.

Additional resources

- Historical data on cases / outbreaks over time is available here: https://www.cdc.gov/ebola/outbreaks/index.html
- Brief history of the Ebola vaccine and the establishment of the global stockpile: https://www.gavi.org/vaccineswork/biodefence-drc-how-ebola-vaccine-became-one-fastest-vaccines-license-history
- About Ebola virus disease: https://www.who.int/news-room/fact-sheets/detail/ebola-virus-disease
- About the two licensed Ebola vaccines: https://www.who.int/news-room/questions-and-answers/item/ebola-vaccines
- Ebola stories from communities around the world: https://www.gavi.org/vaccineswork/tag/ebola
- 2024 WHO SAGE recommendations on Ebola vaccination: https://cdn.who.int/media/docs/default-source/immunization/sage/2024/may/sage-ebola-report-final-draft.pdf?sfvrsn=325acc6_1
- Official launch of preventive Ebola vaccination globally: https://www.gavi.org/news/media-room/gavi-announces-launch-preventive-ebola-routine-multivalent-meningitis-human-rabies-hep-b-vaccination-programmes
- A moving tribute to Sierra Leone's "Ebola doctor", Dr. Sheik Humar Khan, who died of the disease he was helping to fight https://www.npr.org/sections/goatsandsoda/2014/08/10/339372354/doctor-remembered-for-dedication-to-fighting-deadly-ebola
- A look at Sierra Leone's experience of the deadly 2014 outbreak https://www.who.int/news-room/spotlight/one-year-into-the-ebola-epidemic/ebola-in-sierra-leone-a-slow-start-to-an-outbreak-that-eventually-outpaced-all-others

- 2015 report by WHO on Health worker Ebola infections in Guinea, Liberia and Sierra Leone

Sierra Leone: Immunisation context

Overview

- Sierra Leone has high immunisation coverage rates, with over 90% coverage with DTP3, or the 3rd dose of the diphtheria-tetanus-pertussis vaccine – which is commonly used as a marker for a health systems' ability to consistently reach children with immunisation.
- Gavi began partnering with Sierra Leone in 2001, when DTP3 coverage was estimated at 38%. Since then, alongside rising coverage rates, under 5 mortality has fallen by more than 10%.
- With Gavi support, including more than US$200 million in investment, Sierra Leone has expanded coverage of existing vaccines, introduced the pentavalent, rotavirus, pneumococcal, HPV, inactivated polio, measles, measles-rubella, and yellow fever vaccines into routine immunisation.
- This collaboration also covers other areas – fighting outbreaks of diseases like cholera and Ebola as well as the COVID-19 pandemic – alongside long-term investments in cold chain vaccine storage infrastructure, training of health care workers and development of technical and management skills, solarisation and more.
- Most recently, Sierra Leone introduced the HPV vaccine and was one of the first African countries to receive and introduce malaria vaccines.
- After a slower start, Sierra Leone was one of the lower-income countries to make the biggest strides in COVID-19 vaccination during the pandemic. https://www.gavi.org/vaccineswork/which-lower-income-countries-saw-biggest-covid-19-vaccination-coverage-gains-2022 and more details on the effort including an interview with Dr Sesay from EPI https://www.gavi.org/vaccineswork/vaccine-rollout-steps-gear-sierra-leone

Priority areas for Sierra Leone's immunisation strategy

- **Pandemic Preparedness and Response**: Minister of Health Dr Austin H. Demby has emphasized strengthening Sierra Leone's health emergency response and prevention capacities, particularly for diseases like measles. In 2023, Sierra Leone became the fifth country to review its health emergency preparedness and response capabilities, aiming to identify gaps and reinforce measures against health shocks.
- **Climate, Health, and Immunization**: Sierra Leone launched its first Climate Health Unit in February 2024 to bolster the health sector's resilience against climate-related health risks, following a declaration at COP28 in Dubai. This initiative aligns with the MoH's efforts toward health facility electrification, with a focus on solarization.
- **HPV Vaccination**: The Minister, a dedicated advocate in the fight against cervical cancer, has established a comprehensive strategy to improve HPV vaccine access and

coverage. In September 2024, the Expanded Programme on Immunisation (EPI) achieved a 100% target coverage, a notable increase from 55% within just a few weeks.

On-going areas of Gavi's investment

- **Health systems strengthening** – training, data collection and quality, demand generation, supply chain, reach of immunisation service delivery, leadership and management, civil society engagement
- **COVID-19** – Continued vaccination and boosting of high risk groups and efforts to integrate COVID-19 vaccination with other immunisation and health services, to ensure this funding strengthens both efforts. This also includes investment to address any bottlenecks, including gender, community engagement, strategic planning and more.
- **Technical assistance** – Technical support to EPI to expand immunisation coverage and reach, including through skill transfers with staff. This includes investment in WHO and UNICEF country offices to enable them to provide strong technical support to MOH.
- **Equity Accelerator Fund** – specific funding focused on reaching "zero-dose" children who have not received a single dose of vaccine and missed communities – helping expand the reach of the health system and opening the door to other essential services.
- **Vaccine cold chain** – investment targeted at improving vaccine supply chain, including upgrading infrastructure and training
- **Vaccine procurement** – For all routine vaccines supported by Gavi, with approximately 5% co-financed by Government of Sierra Leone.
- **Specific support for the introduction of new vaccines** – Currently HPV and malaria, this investment recognizes the additional difficulty, resources and planning required to introduce a new vaccine into the routine immunisation programme.
- **Measles/Rubella campaign** – a targeted nationwide catch up campaign aimed at children ages 9-29 months every 2-5 years, to ensure coverage rates are sustained.
- **Upcoming:** Launch of **Ebola** preventive vaccination, introduction of routine vaccination against **typhoid**, and introduction of a birth dose of **hepatitis B** vaccine.

About Gavi, the Vaccine Alliance

Overview

- Gavi is an Alliance of immunisation stakeholders forming a public-private partnership that helps vaccinate half the world's children, and provides a critical foundation for global health security.
- Since 2000, Gavi has helped protect more than 1.1 billion children against a range of diseases, averting more than 18 million deaths, helping halve childhood mortality in lower-income countries and helping reduce deaths from vaccine-preventable diseases by 70% in children under the age of 5. In 2023 alone, Gavi-supported vaccines averted an estimated 1.3 million deaths.
- Thanks to the efforts of countries, Gavi and its Alliance partners, vaccines are considered to be the widest reaching health intervention – and one of the most impactful and cost-effective health and development tools available.

What Gavi does

- Countries can currently access vaccines against 20 infectious diseases through Gavi, along with support for strengthening the health systems that deliver them, and vaccination campaigns.
- Gavi provides an essential cornerstone of global health security, maintaining global stockpiles of vaccines against Ebola, cholera, meninigitis and yellow fever that can be accessed by any country in the world. It also helped lead COVAX, including the Gavi COVAX AMC that made nearly 2 billion doses of vaccines available free-of-cost to lower-income countries around the world.
- Since the COVID-19 emergency, Gavi has invested in new innovative mechanisms like the Day Zero Financing Facility – already used to rapidly procure mpox vaccine doses – and dedicated US$ 1 billion to the African Vaccine Manufacturing Accelerator, to support the vision of a sustainable vaccine manufacturing ecosystem on the African continent.
- Gavi helps pool country demand backed by long-term funding to shape vaccine markets – making sure the right products are invested in, developed and made available at affordable prices. A basic course of 11 essential WHO-recommended childhood vaccines costs more than US$1000 in the United States; in Gavi-supported countries they cost a total of US$23.
- Gavi partners with the private sector on programmes like drone delivery and biometric data to help ensure vaccines reach the hardest to reach.
- Vaccination in turn has generated more than an estimated US$200 billion in economic benefits for the countries Gavi partners with, who also contribute to the cost of immunisation programmes.
- Indeed, lower-income countries are setting records for their financial contributions to immunisation, in 2023 more than US$200 million.
- Gavi's goal is to help countries build sustainable, self-sufficient immunisation systems – with 19 countries already graduated out of Gavi support.