

Vaccines Case Study: South Sudan, 2012-2013

Protecting refugee children from vaccine-preventable diseases in Yida



A child during a consultation in Yida Camp, South Sudan. ©Yann Libessart

Background

Following decades of civil war, South Sudan became the world's newest country after gaining independence from Sudan in July 2011. Médecins Sans Frontières/Doctors Without Borders (MSF) has been working in South Sudan for more than 30 years, responding to conflicts and neglected diseases, and filling health care gaps where needed.¹ Yida is a settlement in South Sudan's Unity State, located just 12 km from the Sudanese border. The first influx of refugees to Yida camp began in July 2011 after a border conflict erupted in the neighbouring South Kordofan State of Sudan. MSF began operating in Yida camp in November 2011, offering a range of inpatient and outpatient services including vaccinations and tuberculosis (TB) treatment.¹ The refugee population in Yida remained relatively stable until April-June 2012, when, due to the end of the rainy season and continuing conflict, there was an influx of over 43,000 refugees into the camp, leading to a humanitarian crisis.²

An MSF risk assessment of Yida camp in 2012 found a high risk of illness and death from vaccine-preventable diseases (VPDs). A very high mortality rate was observed, above emergency threshold values, particularly for children under five years of age. An analysis of MSF hospital mortality and morbidity showed that acute respiratory infections were the second-leading cause of childhood illness and death, following diarrhoeal diseases. Assessments upon arrival revealed that many of the children living in the camps had not received their basic immunisations due to a lack of access to health care facilities in recent years. This, together with the overcrowded conditions in the camp, meant that the children in Yida camp were at high risk of pneumonia.

Pneumonia is the leading cause of death of children under the age of five worldwide, killing more than 800,000 children in 2017.³ The pneumococcal conjugate vaccine (PCV),* which provides protection against pneumonia and other serious infections; and the pentavalent vaccine,† which protects against whooping cough, diphtheria and other diseases; are both recommended by the World Health Organization (WHO) for inclusion in routine childhood immunisation programmes. Additionally, based on WHO recommendations,⁴ the early introduction of vaccines during an emergency is crucial to reduce excess morbidity and mortality of communicable diseases. At the time, however, PCV and pentavalent vaccine were not included in South Sudan's public immunisation programme. Based on the 2012 risk assessment, MSF proposed to the Ministry of Health (MoH) the introduction of these vaccines in Yida camp, with the main objective of reducing illness and death due to pneumonia and other VPDs. The introduction would ultimately take the form of a three-round vaccination campaign between July and September 2013 for children under two years of age.

Obtaining PCV for refugee children in Yida Camp

MSF submitted the initial proposal for the vaccination campaign to the MoH in October 2012. A memorandum of understanding (MOU) was signed with the MoH in January 2013, with the agreement that MSF would purchase both vaccines through UNICEF Supply Division. Despite South Sudan being a Gavi-eligible country, and therefore encompassed in the pricing agreements brokered between Gavi, the Vaccine Alliance, and pharmaceutical corporations, since both vaccines were not yet included in the national immunisation schedule, MSF was required to negotiate the price of the vaccines directly with the manufacturers. Negotiating the price of PCV was particularly challenging since only two manufacturers – Pfizer and GSK – produced the vaccines at that time, which were some of the most expensive vaccines on the market. MSF negotiated with both PCV manufacturers directly. Both manufacturers initially offered donations, which MSF declined. Accepting donations from corporations whose income is generated from the production and/or sale of pharmaceuticals, as well as tobacco, alcohol, firearms, and/or mineral, oil, gas or other extractive industries, goes against MSF's corporate donation policy.⁵ Furthermore, MSF believes that pharmaceutical product donations undermine long-term efforts to expand access to affordable vaccines and medicines.⁶

As a low-income country, South Sudan is eligible to receive financial support from Gavi, and is subject to the prices that Gavi negotiates with pharmaceutical corporations. Given the country's Gavi-eligible status, MSF attempted to access PCV through a pre-existing agreement⁷ between Gavi, Pfizer and GSK, which provides Gavi-eligible countries with access to PCV at the lowest global price, at the time US\$3.50/dose.⁸ This request, however, was rejected by both Gavi and the two pharmaceutical corporations,⁹ as Gavi support did not include vaccination for refugee and crisis-affected populations.

Following lengthy negotiations with the two pharmaceutical corporations that took approximately 11 months and greatly slowed down the response time, MSF ultimately paid US\$7.00/dose for GSK's product, PCV-10. This was double the lowest global price available through Gavi. While MSF's initial plan was to vaccinate children up to five years of age based on the disease burden in the camp, the high price of PCV forced MSF to scale back the vaccination plans to children below two years of age. MSF purchased pentavalent vaccine from the Serum Institute of India (SII) through the UNICEF Supply Division at US\$1.85/dose. Overall, the vaccine products comprised 43%

* Two pneumococcal conjugate vaccines (PCV), PCV-10 and PCV-13, can provide protection against pneumonia, as well as other serious illnesses such as meningitis and sepsis, caused by *Streptococcus pneumoniae* infections. PCV is [recommended by WHO](#) for inclusion in every government's Expanded Programme on Immunization (EPI) for infants up to 24 months, and children aged 2-5 years who are at high risk of pneumococcal infection.

† Pentavalent vaccine components include: diphtheria, tetanus, whole-cell pertussis, hepatitis B and *Haemophilus influenzae* type b (DPT-Hib-HepB).

of the total cost of the vaccination campaign, largely due to the high price of PCV-10. With two or three doses of each vaccine needed per child depending on their age, the cost of the vaccine products to fully vaccinate one child was up to approximately US\$28.60, not including the staffing and logistical costs involved in administering the vaccines. Furthermore, obtaining these vaccines through UNICEF required MSF to pay a freight and handling fee of US\$11,427.

The inability to access an affordable price for PCV and the lengthy negotiations with the pharmaceutical corporations, Gavi and UNICEF, significantly delayed the start of the vaccination campaign. Adding to the delays, once the vaccines were already in transit, UNICEF informed MSF with very little notice that they were unable to deliver the vaccines all the way to Juba (the capital of South Sudan), and would instead deliver them to Nairobi, Kenya. This left MSF scrambling to secure enough cold-chain storage space in Nairobi for all the vaccines, and to arrange transportation of the vaccines from Nairobi to Juba, and then on to Yida camp. Transporting vaccines is particularly difficult as they must be kept consistently cold at temperatures between 2° and 8°C.

Ultimately, from submitting the vaccination campaign proposal to the MoH in October 2012, to the arrival of the vaccines in Yida in July 2013, the procurement and supply of the vaccines took 11 months. The negotiation and procurement delays eventually pushed the vaccination campaign into the rainy season in South Sudan, when the swamps that surround the camp are prone to flooding. This resulted in additional challenges in the transportation and administration of the vaccines. MSF finally began the vaccination campaign in July 2013, administering 10,109 doses of PCV to children 0-23 months of age, and 8,871 doses of pentavalent vaccine to children 0-23 months of age, in three rounds over a period of three months.

Conclusion and future solutions

This case study highlights the inadequacy of global and national stakeholders in facilitating solutions for crisis-affected children and the need for pharmaceutical corporations to make their vaccines available in a timely manner at the lowest global price to children living in emergency situations. Looking ahead, some steps have been taken by the global community to address these challenges.

The Humanitarian Mechanism

This was not the first time MSF had been unable to access an affordable price for PCV. After previous negotiation efforts with Pfizer and GSK failed to produce an affordable price, MSF launched a global campaign in April 2015. “A Fair Shot”¹⁰ called on Pfizer and GSK to lower the price of their vaccines to US\$5 per child (i.e., for the full three-dose course) for developing countries and humanitarian organisations. Additionally, in June 2016, MSF and WHO convened key stakeholders[§] to discuss the challenges of vaccine procurement during humanitarian crises, including high prices. This, and subsequent meetings, resulted in the launch of the Humanitarian Mechanism¹¹ in May 2017. With the WHO acting as the validation body, the Mechanism enables the procurement of vaccine products pledged to the Mechanism at the lowest global prices for civil society organisations (CSOs), governments and United Nations (UN) agencies responding to emergencies. During the development of the Mechanism, in September and November 2016, GSK¹² and Pfizer,¹³ respectively, announced that they would provide access to

[§] United Nations High Commissioner for Refugees (UNHCR), United Nations Children’s Fund (UNICEF), International Federation of Red Cross and Red Crescent Societies (IFRC), Save the Children, Médecins du Monde (MDM)/Doctors of the World, Centre for Vaccine Ethics and Policy, Gavi, the Vaccine Alliance (Gavi), International Rescue Committee (IRC), International Federation of Pharmaceutical Manufacturers and Associations (IFPMA), Developing Countries Vaccine Manufacturers Network (DCVMN).

their PCV products through the Humanitarian Mechanism at the lowest global price of approximately US\$3.05/dose for NGOs, CSOs and UN agencies (these pledges exclude governmental use).

While the launch of the Humanitarian Mechanism was a significant step towards protecting the world's most vulnerable children, and could prevent a repeat of the situation MSF experienced in South Sudan, two critical steps are required to maximise its potential. First, manufacturers should ensure that governments trying to protect populations in emergencies are also included in their supply offers. This would enable all developing countries, including middle-income countries outside of Gavi support, to procure vaccines at the lowest global prices when responding to emergencies. Second, the Mechanism is not limited to PCV, and manufacturers must commit to providing other vaccines facing affordability challenges to the Mechanism at the lowest global price.

Gavi's "Fragility, emergencies and refugees policy"

In June 2017, Gavi released a "Fragility, emergencies and refugees policy"¹⁴ to offer greater flexibility and tailored support to countries facing emergencies or fragility challenges, or hosting refugees. The policy aims to adapt Gavi support to specific country needs so as to avoid large numbers of children in emergencies going unprotected from VPDs. Visibility on how this policy has been utilised and implemented by global stakeholders and countries was difficult to come by at the time of this analysis. It is critical that Gavi provide the support needed to its countries, and organisations working in those countries, to respond rapidly to emergencies and not have response efforts stalled by unavailable or unaffordable vaccine access.

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