Reducing the number of zero-dose children worldwide will require radical collaboration of partners to uncover contextual challenges, and then to develop, implement and monitor strategies that improve access to vaccines. VillageReach has developed the Supply Chain Equity Guide, a 4-step tool to support partners in tackling the challenges inherent in delivering vaccines, primary health care and health products to the most under-reached communities.

Supporting the global effort to vaccinate zero-dose children

Despite immunization coverage improvements, as of 2022 there are still 20.5 million children missing key routine immunizations, of whom 14.3 million are considered zero-dose. Nearly two-thirds of zero-dose children—defined by Gavi, the Vaccine Alliance, as those who lack the first dose of diphtheria-tetanus-pertussis containing vaccine (DTP1)—tend to live in extreme poverty, surviving on less than $1.90 per day. Nearly half live in urban areas, remote rural communities or locations mired in armed conflict. However, supplying a first dose sets off an ‘immunization cascade’ that often leads to full immunization. Delivering vaccines to those children is central to VillageReach’s approach to equity.
CONSIDERING EQUITY IN SUPPLY CHAINS IS KEY TO ADDRESSING LOW COVERAGE AREAS

Every under-served community faces unique challenges that account for zero-dose populations or under-immunized populations. The obstacles and challenges a migrant single-mother faces in an urban poor community are different from a remote villager who must traverse impassable roads and great distances to reach a health care facility.

We recognize that equitable access to immunizations requires improving vaccine supply chains. VillageReach’s Supply Chain Equity Guide (Figure 1) is a 4-step tool to get vaccines to the hardest to reach children. This guide aims to develop actionable strategies to address entrenched barriers that lead to high numbers of zero-dose and under-vaccinated children. The Equity Guide delivers a formula that is sustainable and location agnostic so it can be replicated in different settings to overcome a variety of obstacles. It lays out guidance for pinpointing challenges; strategies for mitigating those challenges; and outcomes to look for and indicators to measure progress.

APPLYING AN EQUITY LENS USING 4 KEY STEPS

The 4-step Equity Guide helps decision-makers identify and address the supply chain barriers that limit access to immunization and other health products in under-reached communities. The guide starts (step 1) by identifying under-served populations, focusing on 4 groups: a) urban poor; b) remote and rural communities; c) populations in conflict or security-compromised areas and d) internal or cross-country migrant communities.

After identifying the population, step 2 of the guide presents the user with a comprehensive list of supply chain challenges related to inequitable immunization coverage. In step 3, the guide offers potential mitigation approaches to the identified issues, along with expected outputs and outcomes. Finally, in step 4, the guide presents corresponding indicators that evaluate the factors that facilitate or impede equity within supply chains.
How is VillageReach using the Supply Chain Equity Guide?

**IDENTIFYING TOOLS TO IMPROVE SUPPLY CHAIN EQUITY**

VillageReach used this equity approach in rural provinces of Mozambique, where transportation challenges led to health facilities facing frequent shortages of vaccines and other key health products. Collaboration between the government, fourth-party logistics firms (4PLs) and technical partners led to the implementation of an outsourced transportation program that leverages the expertise, tools and efficiencies of local fourth- and third-party logistics providers (4PL/3PL).

The outsourced transportation program dramatically shifted the supply chain landscape for under-reached facilities. This service has played a crucial role in improving the tracking and monitoring of supplies, resulting in a decrease in stockouts and ensuring the prompt replenishment of essential health products. By leveraging the expertise and resources of logistics providers (4PL), the government has been able to extend product availability to previously under-reached communities improving access to health care services particularly in remote and hard-to-reach locations.

Another prominent example of VillageReach’s equity approach in action saw a drastic uptake in vaccine availability in rural Democratic Republic of Congo (DRC), thanks to the partnership between the government and the private sector. This partnership with a drone service provider responsible for transporting critical medical supplies where roads are often impassable due to infrastructure challenges, abundant rivers and forests and flooding during the rainy season. VillageReach spearheaded this partnership to test and scale this innovative outsourced transport model that leverages a growing technology.

The drone transport system showed remarkable efficacy in mitigating supply chain challenges and increasing equity at hard-to-reach health facilities:

- Vaccine availability increased from 65% to 98%
- Facilities needing to wait more than 2 days to receive a vaccine decreased from 65% to 0%
- Health facilities that were out of stock of vaccines fell to 0%
DEPLOYING THE SUPPLY CHAIN EQUITY GUIDE

In close partnership with governments, VillageReach is deploying the Supply Chain Equity Guide in DRC and Côte d’Ivoire, where there are nearly 1 million zero-dose children between both countries. From 2023-2024 we will be implementing all four steps of the guide in two distinct geographical settings:

- **DRC**: Mai-Ndombe Province, in Oshwe and Mimia Health Zones, a rural area, home to over 32,000 zero-dose children. Many health facilities have limited or no access to telecommunication services and some are over 300km from the nearest vaccine storage facility.

- **Côte d’Ivoire**: Adjamé-Plateau-Attécoubé District in Abidjan. An urban setting where rapid expansion, construction and internal displacement have left certain communities without convenient access to health facilities and vaccination services.

VillageReach will document our experiences implementing this guide in these two settings in order to share lessons learned and encourage partners to use this equity guide for their vaccine delivery programs.

Look for future briefs documenting:

- how outsourcing to traditional or drone transporters are proving to be reliable tools for equity
- lessons learned from implementing the Equity Guide in DRC and Côte d’Ivoire

If you would like to learn more about the Equity Guide or if you would like to be trained to implement it, please email Emily Gibson, Manager, Health Systems Team, at emily.gibson@villagereach.org

4PL private transporters deliver health products to a health facility in Zambezia province in Mozambique. 
*Photo credit: Denis Onyodi*