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Roadblocks at the last mile: What's slowing down vaccines in Zambia

While Zambia aims to deliver COVID-19 vaccines to 70% of its people by June 30, 2022, the road to getting there is uncertain. The Zambian Ministry of Health reports that, as of February 21, 2022, 21.6% of people were fully vaccinated. Vaccine doses available in the country are slowly rising, with 6.2 million doses arrived as of February 11, but less than half of those doses have made it into people's arms. By February 23, only 2.77 million doses had gotten to people. By December 31, 2021, only 7.2% of people had gotten a vaccine, compared to a goal of 40%. **Without significant investments in last mile delivery, especially for people at highest risk, Zambia risks missing its next COVID-19 vaccine targets.**



\$17 per person

Government estimates of the cost to deliver COVID-19 vaccines in Zambia.

CARE estimates that in Zambia, vaccine delivery costs a **minimum of \$17.18 per fully vaccinated person, or \$7.30 per dose delivered.**¹ That is 7.2 times more than current global estimates, which are \$2.38 per person.² Personnel costs, investments in transportation and cold chain, and community mobilization are some of the biggest drivers of this cost. Even with its robust childhood vaccination system—93% of Zambian children got their first measles vaccine in 2019—Zambia has not been able to get enough COVID-19 vaccines to the last mile.

In Zambia, CARE supports COVID-19 vaccine delivery for 3 districts (Lavushimanda, Kanchibiya, and Shiwang'andu) in Muchinga province. The experience in these districts indicates that **current investments and costs are dramatically underestimating the needs to reach 70% of the population on time.** These districts together have a vaccine target of 170,076 people across 48 health different types of health structures. They have reached 35,492 people, 26% of the total goal. Creativity and persistence have gotten districts this far. But without additional personnel, infrastructure, and financing, it won't be far enough.

¹CARE used the [WHO CVIC tool](#) to estimate costs of delivery, including human resources, cold chain logistics, monitoring, and demand generation activities. CARE cross checked with [Zambia's National Vaccine Deployment Plan](#) (NDVP) from April 2021, which uses \$17.15.
² This is using UNICEF's "Protecting human resources for essential health services partially" model, which estimates \$2.38 per fully vaccinated person.

What are the costs to deliver COVID-19 vaccines?

There are a number of factors that make up COVID-19 vaccination costs. Some of the main cost drivers in this model are:

- **Health workers.** The average nurse's salary in Zambia is [\\$532 per month](#), and community health volunteers get a stipend of \$15.24 for days they work on vaccination efforts.
- **Travel and lodging reimbursements.** Health workers make an additional \$38.57 for days when they have to travel and stay outside their own communities. This model estimates that health workers will be required to do that for 3 days per training twice a year. Community Health Workers are entitled to a travel allowance of \$9.52 on days they must travel for training or vaccinations.
- **Fuel.** Traveling to vaccination sites to conduct community mobilization, host a vaccination day, or oversee activities at a vaccination site costs \$54.76 per trip in average fuel costs.
- **Engaging local leaders.** Connecting to local leaders and getting them the information and training they need to promote vaccine confidence requires \$600 per community, and those meetings and engagement sessions need to happen 4 times a year to keep up with the rapidly evolving COVID-19 information. Quarterly engagement sessions with local leaders also allow space for accountability, feedback, and understanding new obstacles and challenges as the situation changes.
- **Data infrastructure.** Data has been one of the biggest challenges for Zambia. There are large gaps in internet connectivity, and too few data entry clerks for the demand of rapid data tracking in the COVID-19 vaccine context. Training data clerks costs \$173.38 per person trained. Data entry clerks also get a monthly stipend of \$23.81. Additionally, paying for data bundles to ensure access to online COVID-19 vaccination systems requires \$2.38 per health center per month over a 12-month delivery period.

[World Bank and COVAX funding to Zambia to support COVID-19 vaccine purchase and delivery targets only 25.1% of the population—leaving a gap of nearly 45% of people to vaccinate. Less than a quarter of that financing supports delivery costs.](#)

Barriers to delivery

What a vaccine team should look like	What is available now
 1 Vaccinator	 1 Vaccinator
 1 Data Clerk	
 1 Safety official	 1 Motorcycle
 1 Registrar	 No fuel
 1 Mobilizer	
 1 Driver	
 1 Car	

Available personnel. According to [Zambia's National Vaccine Deployment Strategy](#), a vaccination team consists of 6 people: a vaccinator, a data entry clerk, someone to verify registration, a safety official, and a community mobilizer. In theory, those 6 people would vaccinate 100-200 people per day. In most areas, however, there are only one or two people to both provide COVID-19 vaccinations and ensure all routine health care. Often, health facilities can only vaccinate 20 people per day while providing other health services.

Cold chain. Most health posts—the smallest and most remote health structure in Zambia—do not have the cold chain necessary to store COVID-19 vaccines. This leaves teams with two options: either drive fresh doses of COVID-19 vaccines to health posts every day, or only deliver COVID-19 vaccines in more central health facilities. Generally, teams only deliver vaccines from health facilities in central areas. People who come to

health posts are turned away or are told to travel long distances to the more central facilities.



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Data gaps. Many health facilities lack the connection to the power grid or the internet connectivity to enter their data into the national vaccine tracking system. At best, data is only updated once a week, which makes it slow to adapt to changes and gaps in the system. In the areas CARE covers, 28 out of the 48 health facilities have neither power nor internet. These either use unreliable solar power systems or they have no electricity at all and use hotspots for internet from mobile service providers if they have network coverage. In those areas, the data entry clerk fills out paper records, and hopes there will be a data clerk available to drive to a health facility with internet connectivity to catch up on the backlog. In 2 areas where CARE is operating, investing in data systems accounts for more than a quarter - 26% - of the recorded vaccinations in 21 health facilities. Those investments include hiring additional data clerks and paying a lunch allowance for them to enter data in the system from facilities that have electricity and internet.

Inconsistent supply. Vaccines are starting to trickle in from COVAX and other donors, but supplies are unpredictable. The lack of consistency creates an artificial shortage of vaccines. Late delivery makes it difficult for health facilities to plan vaccination campaigns, share information, and mobilize people. Without clear plans for when and where vaccines are available, people still experience a shortage when health centers do not have vaccines on the days they go to the clinic—even if vaccines are available somewhere in the country. Once people are turned away, they are less likely to come back on another day to get vaccines.



26%

*of the vaccination rate in 3 districts
where CARE works comes from
reinforcing gaps in the data entry
system*

Transportation. Organizing mobile vaccine distribution and ensuring that vaccines make it to the most remote health posts requires vehicles—cars that can carry a full vaccination team—and fuel. These do not exist at many health facilities, and there is little or no budget to support them. In places where they do exist, they are often intended to cover routine childhood vaccinations or maternal health services. Reallocating existing transport for COVID vaccinations makes it impossible to continue existing essential health services.

Community mobilization and buy in. [86% of Zambians](#) say they are willing to get a COVID-19 vaccine when they become available. However, even in places where people want to get vaccinated, they are struggling to access vaccines. Understanding when and where to show up for vaccination is a challenge, as is understanding what vaccine will be available. When they can't get a predictable service or a clear explanation of what's happening, people are reluctant to get the vaccine. Persistent myths about vaccines also fuel hesitation for some Zambians.

Working with trusted community health volunteers, local leaders, clergy, and teachers are all ways to build trust in the vaccine and help people organize to get vaccines. One successful example was a leader from Jehovah's Witness who decided that every service would be canceled until the community got vaccinated. Those areas swiftly reached 100% vaccination rates. This will take more than one strategy, and repeated mobilization efforts to increase vaccination rates. In many communities, a combination of health volunteers, local leaders, radio announcements, and distributing educational materials has been necessary to promote the vaccine.

“They only open the J&J when there are 5 people ready for vaccination. If you go there alone (or less than 5) and there isn't a vial open, they will offer alternatives. Quite a number of people walk away at this point. I did the first time.”

- Patient, Lusaka

Gender Gaps

According to the [WHO](#), there is still a gap in gender equality and access to vaccines in Zambia. While 10.6% of men have gotten a COVID-19 vaccine, only 8.6% of women have gotten their first dose so far. These numbers are starting to improve through targeted communications campaigns reaching out to women and advocacy for health centers to ensure that they include women in vaccination campaigns. In some areas, women are now even more likely to be vaccinated than men.

High Risk Populations

There are additional barriers to service for people in high-risk demographics. Zambia currently hosts 89,012 Persons of Concern (PoC), including refugees, asylum seekers, and former refugees. These people primarily live in settlements where they have lower access to hygiene, health services, and the ability to practice COVID prevention behaviors. By August 2021, only 358 of these people have received the 1st COVID-19 vaccination, and 234 had been fully vaccinated. In that same time period, 575,032 doses of COVID-19 vaccines had been administered in Zambia—meaning refugees had gotten just one tenth of one percent of all vaccine doses, despite being at especially high risk.

Authors

This brief was written by Allan Zulu, Emily Janoch, Allison Prather, and Miriam Selva. The information in this brief is up to date as of February 23, 2022. Further updates will be made as more data becomes available.