

Driving a people-centered approach to expand immunization coverage in Zambézia, Mozambique

How VillageReach worked with Digital Medic and other partners to develop pictorial education cards for caregivers of young children to reduce childhood routine immunization dropout rates in Zambézia, Mozambique

VILLAGE REACH.



By VillageReach and Digital Medic

Despite significant progress of the Expanded Program on Immunization (EPI) in reducing preventable diseases in children over the last decade, in Mozambique, 20 percent of children who start routine immunizations do not complete them. To address this challenge and build a solution that lasts, VillageReach implemented the [Let's Talk About Vaccines! Study](#), which aims to understand the barriers caregivers face in fully vaccinating their children and to identify, implement and evaluate community-driven solutions to reduce routine immunization dropouts.

Traditionally, new solutions to improve childhood routine vaccination coverage have been driven by international stakeholders and national government decision-makers. Caregivers and the health workers who directly interact with them have not been engaged in identifying barriers and designing the solutions to address them. The Let's Talk About Vaccines! Study aims to change this by collaborating with caregivers and health workers, acknowledging that they have the greatest understanding of the barriers they face and how to address them. The research design uses community-based participatory research (CBPR) and human-centered design (HCD) to engage community members.

What is CBPR and HCD?

CBPR allows researchers and community members to collaborate equally in the research process, focusing on cultural inclusion, equity and mutual understanding. Similarly, HCD places people at the center of the design process, creating a program or solution that resonates with the community and is built for purpose.

This article outlines the CBPR and HCD approach we took to co-develop one component of the [community-identified solution](#) – pictorial routine immunization educational cards. Below we outline the methods and approach we took to develop these cards in partnership with [Stanford's Digital Medic](#), Provincial and district health authorities, health workers and caregivers of children under-the age of two. Our hope is that by sharing our process, we can help others planning to take participatory approaches to develop public health solutions that meet the needs and preferences of traditionally under-reached communities.

The building blocks to co-creating a routine immunization educational tool

Digital Medic joined the project as the design and health education lead, bringing their rich experience in design, health education and immunization to the project.

Guided by CBPR and HCD principles and approaches, we followed the below process to develop the pictorial education cards:

Understanding barriers to childhood vaccination through the caregiver's perspective: VillageReach and Caregiver Researchers collected photovoice data in Gile and Namarroi districts in Mozambique, where caregivers described the barriers that deter full immunization coverage.

By using these highly participatory and visual methods, we were able to gather nuanced data on drivers of under-two immunization dropouts. Specifically, by collecting visual and verbal data from caregivers, we were able to craft a detailed data set about what is driving dropouts, including: little familiarity with the immunization schedule and a fear that their children will receive too many vaccines at once they begin to drop out of the immunization schedule; hesitancy surrounding vaccine side effects; fear of being put down or humiliated by health workers for missing a vaccine on the schedule; and a lack of social support to travel to health facilities and care for children during and after vaccine sessions.

Image 1: A selection of caregiver stories that were collected through the photovoice approach

Examples of stories that informed our approach and key messages



A caregiver describes the challenges with having to travel to the hospital for vaccination, sharing “On the days that we have to take the child to vaccination, we have to get food and water to leave with the [other] children who will stay at home one day before, because the trip to the hospital is no joke.”



A caregiver of a partially-vaccinated child shares “...[W]hen I started missing the following months, the child would get all the vaccines simultaneously causing more adverse reactions to the vaccine; that forced me to abandon the process in order to allow my child to rest...”



“This photo shows my husband with the child in hand after I have vaccinated the child; she was upset and crying because of the injection. I appreciate this because some men don't help a woman take care of the vaccinated children as if they were just [the women's responsibility]... [men] ought to help when the child is upset.”

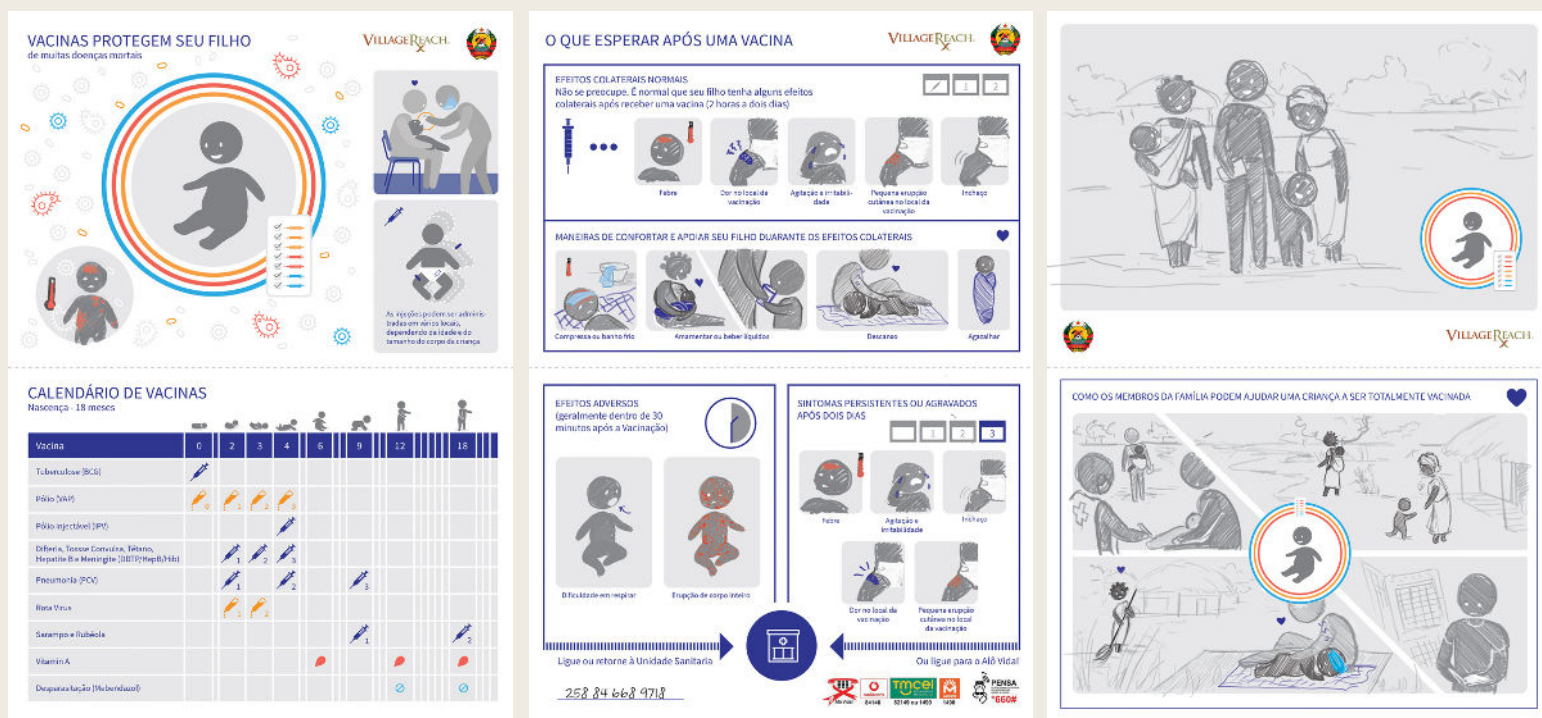
Photo credit: caregivers of children under two; Location: Mozambique

- 1. Moving from findings to solution identification:** We consolidated all of our findings in two HCD ideation workshops; participants in this workshop represented health workers, caregivers, provincial and district health authorities and the community. To generate solution ideas, we presented caregiver journey maps and personas, created problem statements and developed solution framing and idea centers. From these workshops, participants generated 15 different solution ideas, ranging from improving interpersonal communication skills for health workers to improving the infrastructure of the health facility. We presented the solutions to the provincial health department to select which solution we would move forward with based on potential for impact, alignment with their priorities, budget and timeline for implementation – they selected increasing involvement of community health workers to support mobile brigade execution and community education.
- 2. Narrowing in on pictorial vaccination education cards:** Once the overall solution was identified, we broke down the different components of the solution – collaborative mobile brigade planning, mobile brigade execution and community education. For each component of the solution, we researched existing evidenced-based solutions to support the design our specific solution.

We selected pictorial cards as our preferred tool after conducting a rapid review on the best method for improving immunization behavior. The cards would be accompanied by health worker training on motivational interviewing, having empathic conversations with caregivers and a job aid for delivering the key messages.

3. **Designing the first prototype:** We identified the four key messages to be delivered through the educational cards based on the findings from the photovoice data. These key messages were: (1) vaccines saves children’s lives (in a baby’s first 18 months they should have six vaccine appointments); (2) side effects are normal and there are simple things you can do to make your baby more comfortable; and (3) vaccinating your child is a shared responsibility. These messages were based on specific findings from our data around drivers of vaccine dropout results.

Image 2: The initial prototypes developed by Digital Medic



To develop the first prototype VillageReach provided detailed information to Digital Medic on each key message, including key quotes and photos from the photovoice data (Image 1).

Digital Medic delivered the first prototype, which was created based on detailed information from VillageReach’s research, including caregivers’ key quotes, themes and photos (Image 2).

4. **Collaboratively refining the prototype:** To then refine the prototype, VillageReach held a prototyping workshop, where community health workers, caregivers and community leaders had the chance to prototype the cards and provide feedback, discussing how the layout of the cards could be improved. The cards we used in both mock educational sessions during the prototyping workshop and tested in select health facilities. Based on this workshop, we refined the language of the cards to be in line with Ministry of Health guidelines, gathered feedback on how the cards could be used and how they should be handed out to caregivers and hung as posters in the health facility. Overall, participants found the workshop to be useful to them, and it provided critical feedback to the VillageReach and Digital Medic team to update and finalize the design of the educational cards.

Prototyping workshop feedback



Photo credit: Lidia Jahar, Location: Mozambique

“I am very happy to be part of the prototype workshop, and I see VillageReach is involving us in designing and prototyping interventions for our communities, this is very good because we have the chance to think, shape and propose solutions that are adequate for our community after all we are the ones living at the communities not VillageReach staff not even the health facility worker.”

-A community health worker who attended the workshop

5. Finalizing the prototype and receiving

government buy-in: Once the prototypes were updated, VillageReach presented the cards to the Mozambique Ministry of Health team, who provided final feedback on the cards, which included small changes to the wording to ensure alignment with MoH messaging. After final feedback was provided and incorporated, the cards (Image 3) were tested for one month in the community through a survey with 25 health workers (HW) and community-health workers (CHW). Of the 25 surveyed HWs and CHWs, 96% (24/25) reported that the cards were easy to use, 100% reported that caregivers understand the photos and illustrations on the cards and that they provide caregivers with new information about vaccines, and 96% noted that the cards encouraged caregivers to ask more questions about the vaccination process. Since distributing the cards to the 11 participating health facilities and community health workers in November, 1,926 educational cards have been handed out to caregivers and just over 2,000 educational sessions (group or individual) have been performed at the health facility and community using the new cards.

Image 3: Final mockup of final cards created by Digital Medic



Key success factors for using HCD to develop community-driven solutions

The touchstone of VillageReach's work on immunization drop-out in Mozambique has been to work for and with caregivers of children under-the age of two and the health workers who directly serve them. As we continue this work, we will continue to lead with this people-centered approach, developing deep partnerships both locally in the countries we serve and globally with collaborators, like Digital Medic, who help shape our work.

Throughout our journey to improve vaccine coverage in Mozambique, we've captured a few success points, including:

- **Local partnerships (including community leaders, health workers and caregivers) and government stewardship strengthen our impact:** Working with governments, communities and key stakeholders informed the best way to move forward with our objectives.
- **Let the research be guided by those with local experiences:** At the center of our work are caregiver voices; their experiences have informed and will continue to shape our solution to reduce immunization drop-out.
- **Bring in complementary expertise:** To implement specific objectives, like our pictorial cards, we engaged with Digital Medic, who has broad expertise in health education design.