

# Enabling Pro-active Vaccine Management in Low-resource settings

In low and middle-income countries like Nigeria, vaccines are essential to the survival of children under the age of five. However, keeping vaccines between the required  $+2^{\circ}\text{C}$  and  $+8^{\circ}\text{C}$  has been a long standing challenge exacerbated by poor power availability.



Fatima Adamu Bello is the officer in charge of the Immunization unit in Danbatta General Hospital, Kano State where power supply from the grid is often absent or at best, epileptic. Fatima and her team faced the challenge of keeping vaccines at the right temperature to prevent damage and maintain vaccine potency. The hospital has been disconnected from the national grid for several months and currently relies on a generator for power supply. Due to the cost of fuel, the generator is switched on for only a few hours on weekdays and for even less on weekends.

The MetaFridge CFD-50 vaccine refrigerator, developed by Global Good and manufactured by Aucma Global Medical Co., is designed to serve a wide variety of Expanded Program on Immunization (EPI) facilities in GAVI-supported countries.

“ We used to put vaccines into the solar refrigerator. Since I am also not able to climb the roof and clean the panels, every three to six months, someone from the local government has to come to clean the solar panel so that it can charge well. - Fatima Adamu Bello ”

In partnership with Global Good, Fenlab and Aucma, eHealth Africa has been field testing MetaFridge at health facilities in Kano State, including Danbatta General Hospital, where Fatima works.

A compelling feature of the fridge is its ability to safely maintain a chamber temperature within the required 2-8°C range for five days or more. The fridge also features actionable information in the form of a 30-day temperature record and holdover information – to inform health workers on the time remaining for the fridge to retain the required temperature before power would need to be restored. This information – viewed on the fridge's display screen – can also be accessed remotely through an online-supported remote performance monitoring system.

*"I remember when they brought the MetaFridge. They said it could maintain the vaccines for 5 days without electricity. I did not believe them" - Fatima*

Fatima quickly realized that she was wrong. She shared the incident that reinforced her faith in MetaFridge. During the nationwide strike action, which lasted for over a month, she received a call from the technicians monitoring the fridge remotely, to inform her that the MetaFridge in her facility had only two days of holdover left without power and that she needed to activate her contingency plan. This both surprised and pleased her.

*"I felt like the technicians were also watching over my vaccines with me. I quickly packed the vaccines in cold boxes with ice packs and moved the vaccines to the LGA cold store to prevent them from spoiling"*

When asked about her favorite feature of the MetaFridge, Fatima explained that the fridge is easy to use. MetaFridge features a front-door, similar to a household refrigerator, and includes a Standard Operating Procedure that shows exactly how to label and load the vaccines using plastic trays; these make the organization and inventory management of vaccines in the fridge much easier. Unlike chest-opening refrigerators, she doesn't spend a long time searching for the vaccines she needs.

In the past, Fatima was required to record temperatures of cold chain equipment in the facility twice a day, including weekend, to ensure the fridge was functioning properly. Since MetaFridge arrived at Danbatta General Hospital, Fatima no longer needs to come to the facility on weekends and she has been able to spend more time with her family.

*"The MetaFridge gives me peace of mind. I no longer have to worry that my vaccines will get damaged because there was no light. Now, I put all my vaccines in the MetaFridge. On Fridays, I check how many days the MetaFridge can last without power, so I now no longer need to come to the facility on the weekend just to check temperatures, my children no longer ask me where I'm going during the weekends"*

We look forward to receiving more stories like Fatima's.



Fatima and her team



The MetaFridge in a health facility in Kano