

ColdTech

A Human-Centered Design Approach to Cold Chain Maintenance

Challenges in Keeping Vaccines Cold

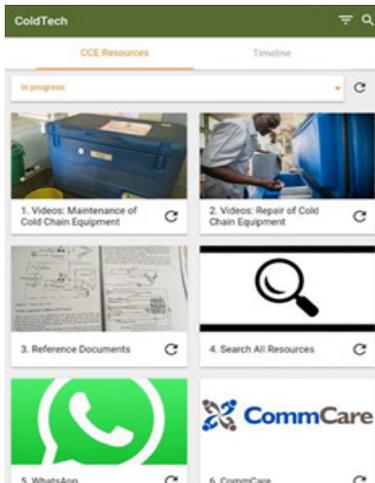
Vaccines must be stored in specialized and high-functioning refrigerators or freezers to effectively prevent disease. The range of equipment available, inconsistent supply of spare parts, and limited training of cold chain technicians (CCTs) adds complexity to keeping the cold chain cold.

The EVM Global Data Analysis¹ demonstrates that preventative maintenance for each level of the supply chain is significantly lower than the target of 80 percent for the 39 African countries assessed. One contributing factor is the availability of trained technicians and engineers for basic maintenance and repairs.

CCTs in Malawi commonly receive three months of basic training in maintenance and repairs along with a printed manual upon completion. Limited training and minimal job support tools do not equip CCTs with the skills needed to address the varying CCE maintenance and repair needs, which can lead to poor CCE performance and ad-hoc approaches to resolving cold chain problems.

Introducing ColdTech

A Digital Tool for Cold Chain Maintenance



Pic. 1 ColdTech interface on Moodle

VillageReach and the Malawi Ministry of Health (MoH), with support from digital learning agency Bull City Learning, hosted a design workshop with two dozen CCTs from across central Malawi. The session pinpointed gaps in technical knowledge and identified job support solutions to improve equipment functioning. CCTs then helped VillageReach design and develop an interactive video-based maintenance and repair application called ColdTech.

ColdTech is designed through Moodle, a flexible, open source learning platform that allows for the easy addition and removal of content. The ColdTech application and content are loaded onto tablets or smartphone devices providing videos and reference documents that can guide CCE maintenance activities anytime.

The ability of ColdTech to be used offline once the content is downloaded makes this application suitable for use in last mile settings where network connectivity is limited and inconsistent. It also allows for collaboration with other partners who utilize mobile devices as part of their programs.

ColdTech Use in Malawi

Since September, ColdTech has been used by cold chain technicians throughout Malawi's central region. Currently, ColdTech includes:

Video aids

- Routine and quarterly preventative maintenance
- Removing accumulated water
- Maintaining solar, gas, and kerosene refrigerators.

Reference documents

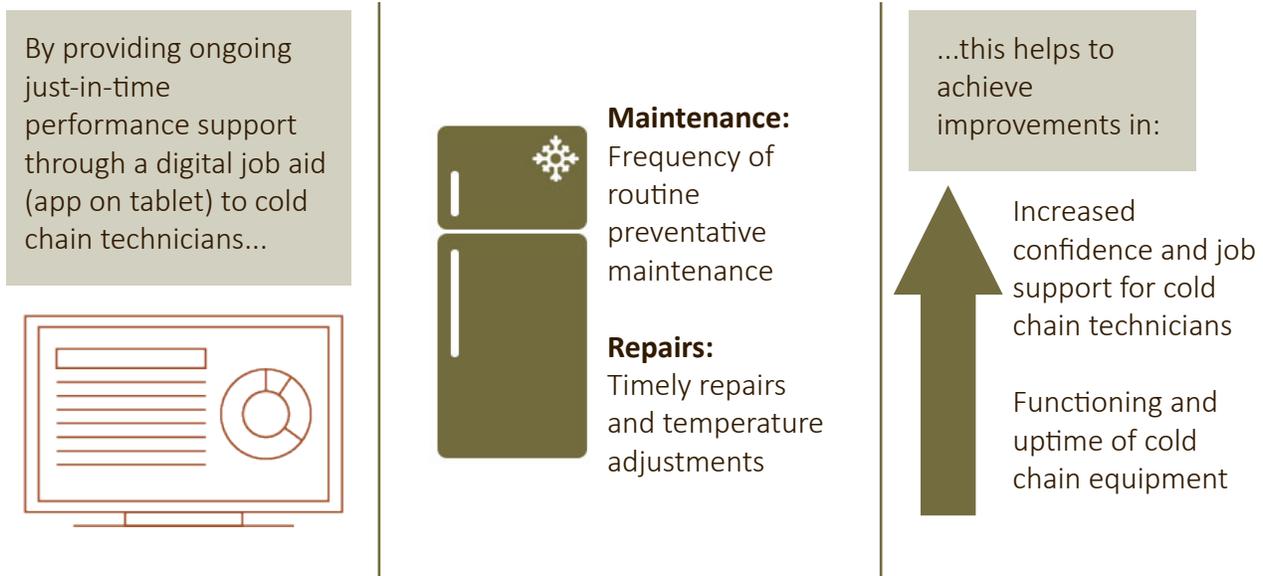
- General maintenance
- Maintenance for Vestfrost Solutions and B Medical Systems, which comprise the bulk of equipment from Gavi's Cold Chain Equipment Optimization Platform (CCEOP) in Malawi.

Additional videos and reference material on a wide variety of manufacturers will be added over time.

VillageReach is currently working with CCTs to adapt the tool and increase its usability. While this application is tailored to what the CCTs in Malawi have identified as their primary work tasks and challenges, the application's model and platform can be edited to address varying CCE needs and CCT skill levels.

After additional content is added and CCT suggestions are incorporated, ColdTech is expected to be rolled out to the north and south regions of Malawi. By using ColdTech, technicians are better equipped to improve CCE performance and respond to CCE malfunctions. With improved cold chain performance, we anticipate improvements in the confidence and job support for cold chain technicians, as well as improvements in functioning and uptime of cold chain equipment.

ColdTech's Theory of Change



References

1. http://www.who.int/immunization/programmes_systems/supply_chain/EVM-Global-Data-Analysis-2009-2015.pdf