17th TechNet Conference

Panama City, Panama | October 16-19, 2023

Immunization Programmes That Leave No One Behind

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Thinking outside the [cold] box: Finding solutions to your cold chain maintenance

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October 17, 2023

National deployment of a cold chain information system digital tool in Uganda

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Outline

Introduction

Introduction of the Digital Cold Chain Information System (CCIS)

The System

Platform Key Features and Accessibility

Impact of the CCIS

Impact and Potential Challenges of Future Prospects

Introduction of the Digital Cold Chain Information System (CCIS):

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Collaborative Efforts behind CCIS

CCIS Pilot and Results

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Overview

Location: Kampala, Waisiko, and Nakaseke Districts

Participants: 15 districts cold chain technicians and assistants (DCCTs/DCCAs) and 15 central-/national-level staff trained on ODK-X use by UW and PATH.

Data collection period: February 2020 through April 2020, 15 DCCT/As sent cold chain data using CCIS. Monthly results presented in the Uganda National Expanded Programme on Immunization (UNEPI) monthly vaccine management meetings.

Test interoperability: Sharing data with **DHIS2** and **CCEM** and applying data standards.

Significant uptake and update of cold chain inventory:

- **80%** of the 394 health care facilities were updated.
- **81%** of the 486 CCE were updated,

Maintenance records

Type	Frequency
Preventive	133
Repair	3
Other	5
Blank	12
TOTAL	**153**

Spare Part Utilization

Spare part	No.
Thermostat controller	2
Voltage stabilizer	12
Solar related part (unknown)	1

Conclusion: The Ministry of Health's technical committees reviewed the results and recommended nationwide scaling of the CCIS

The System

Key Features of CCIS

Platform & Accessibility

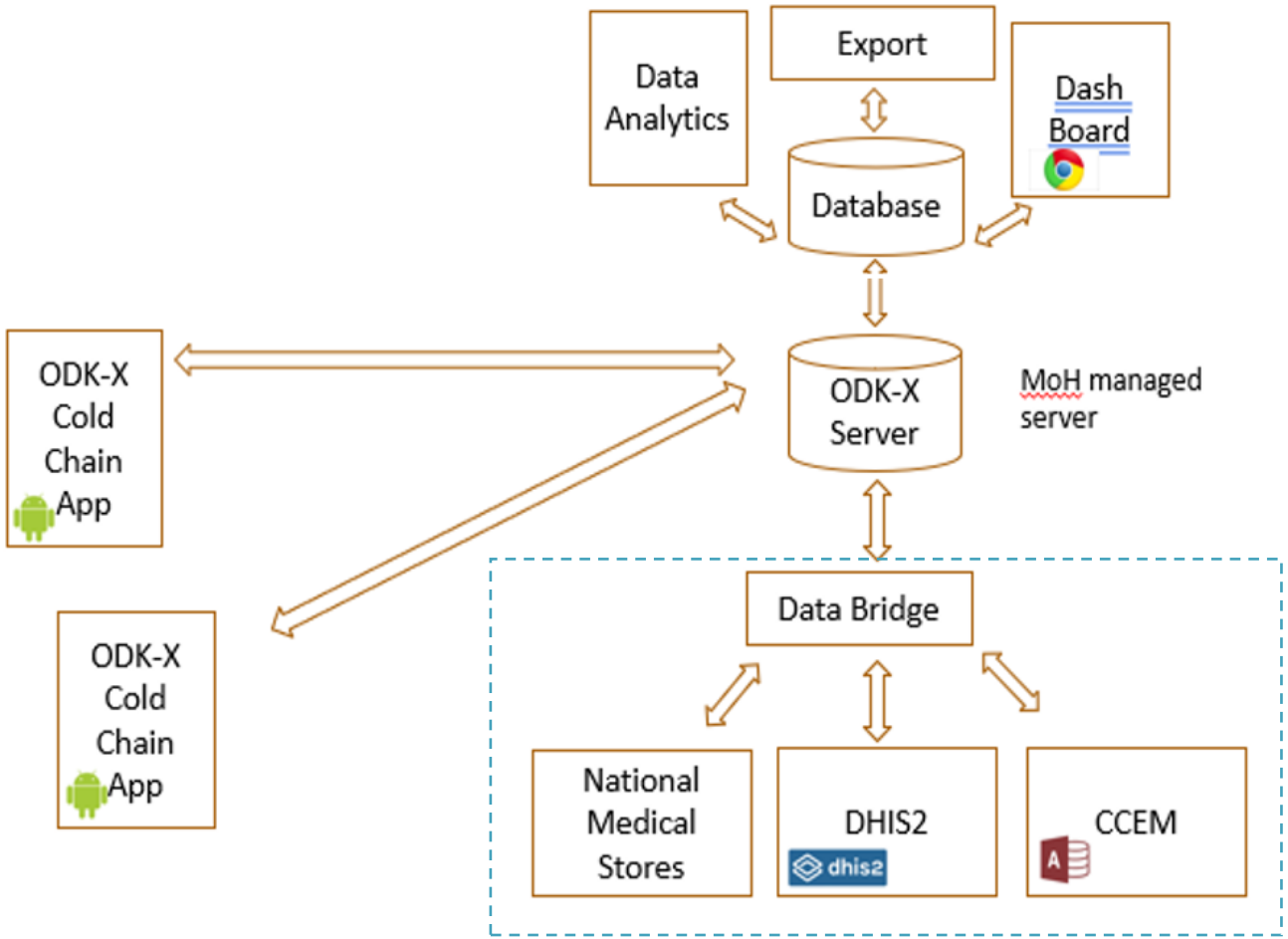
Built on the **ODK-X platform**, a step-up from traditional ODK.

Enables **bidirectional data sync** – both from devices to central servers and vice versa.

Accessible via **Android devices** with robust **offline functionality** – sync when online.

Key Features of CCIS

System Structure



ODK-X APP Structure

It is primarily structured to capture CCE Inventory data, temperature data and maintenance records.

- Mobile App built on the ODK-X platform

Geographic Hierarchy

Country > Region >District > Health Facility

Data Hierarchy

Health Facility > Refrigerators/Cold Rooms > Maintenance Log

Impact and Potential Challenges of Future Prospects

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Impact of the CCIS

Positive Outcomes Post-CCIS Implementation

Enhanced CCE Functionality: The CCE functionality skyrocketed to an impressive 98.42% by September 2023.

Data-Driven Decision Making: At the national level, staff from UNEPI and NMS now employ CCIS data for holistic cold chain inventory management, procurement strategizing, and consistent reporting to critical TWGs such as the Vaccine Management Committee.

Optimized Maintenance Activities: NMS personnel harness the data to prioritize, strategize, and plan for CCE repair and maintenance tasks, ensuring a more responsive and agile system.

Accountability & Warranty Management: Warranty data captured using the application enhanced accountability and laid down robust groundwork for spare part and repair warranty claims.

Thank you

Implementing a human-centered design approach to understand pain points and craft solutions to cold chain equipment maintenance in Niger

Wendy Prosser, MOMENTUM

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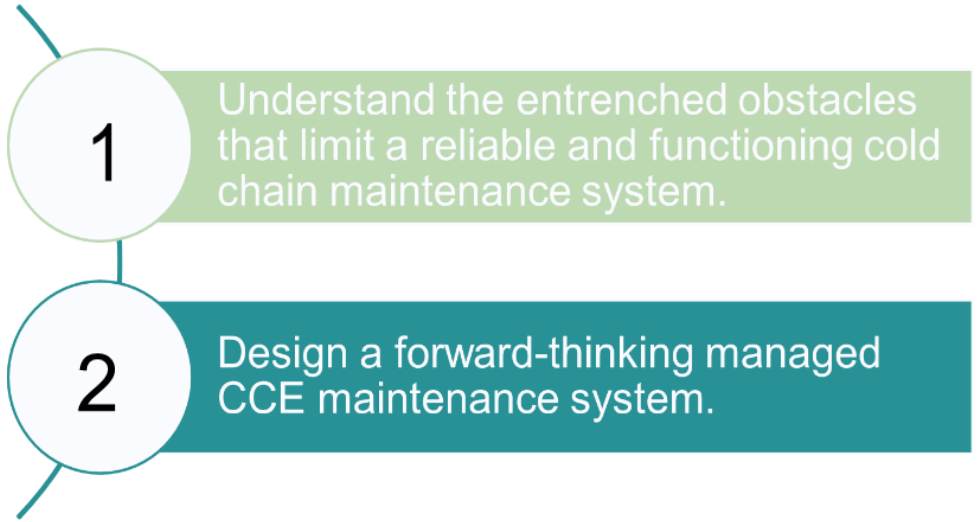
HCD study in Niger on cold chain equipment (CCE) maintenance

Human-centered design study with two objectives:



Study overview:

- Two regions in Niger
- Data collection Feb-March 2023, co-creation workshop April 2023
- 23 participants included:
  - CCE maintenance technicians
  - Immunization officers (regional and district)
  - Health center in-charge
  - Financial manager (regional and district)

Insights fell into three themes that emerged from data collection and synthesis

1. Agility of the system and optimization of resources
2. Prioritizing the cold chain
3. Knowledge sharing across the system

Facility in-charge in her office in Tahoua.

Theme 1: Agility of the system and optimization of resources

- CCE maintenance is within a *hierarchical* organizational structure.
- Communication related to CCE is *ad hoc and unstructured.*
- Maintenance is highly dependent on partners for funding, resulting in a *rigid system that is slow to respond.*
- Temperature data is recorded twice daily but with *little understanding of the utility of the data.*

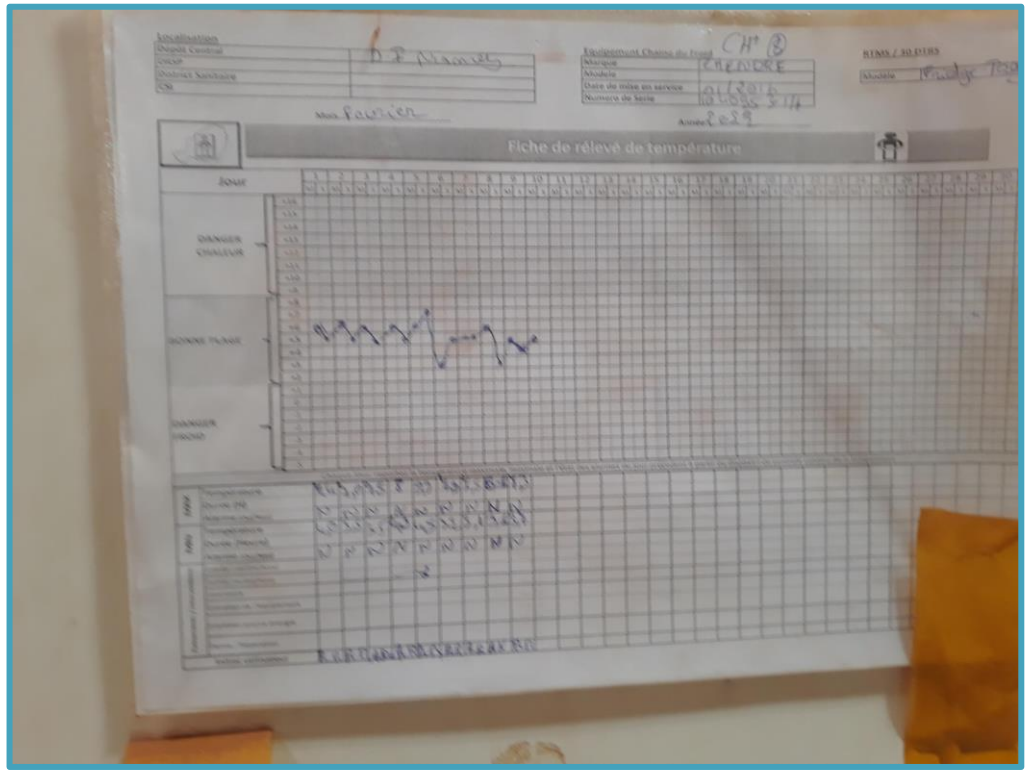


Image of a temperature monitoring chart

Theme 2: Prioritizing the cold chain

- Decisions on equipment *lack input from local staff* so may fall short of being context appropriate (i.e., fans getting dusty).
- CCE is often an *"add-on" or afterthought* to immunization program activities so does not receive the attention required to prioritize maintenance.

Cold chain technician in Tahoua showing the fan that is the part that breaks frequently on the fridges.

Theme 3: Knowledge sharing across the system

- A *misalignment* between decision makers and cold chain staff about training expectations.
- Demonstrated need for *hyper-tailored training.*
- Limited understanding of roles and responsibilities results in *limited sharing of information* and *inefficient use of human resources*.

Research assistant in the office of the maintenance division at the regional hospital in Tahoua.

Co-creation workshop explored potential solutions

Participants identified four potential ideas to explore as solutions to improve the maintenance system.

Participants from the Niamey co-creation workshop.

What are your ideas?

Thank you

Improving Cold Chain Maintenance in Low-Resource Settings: Lessons from Nigeria

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The Problem

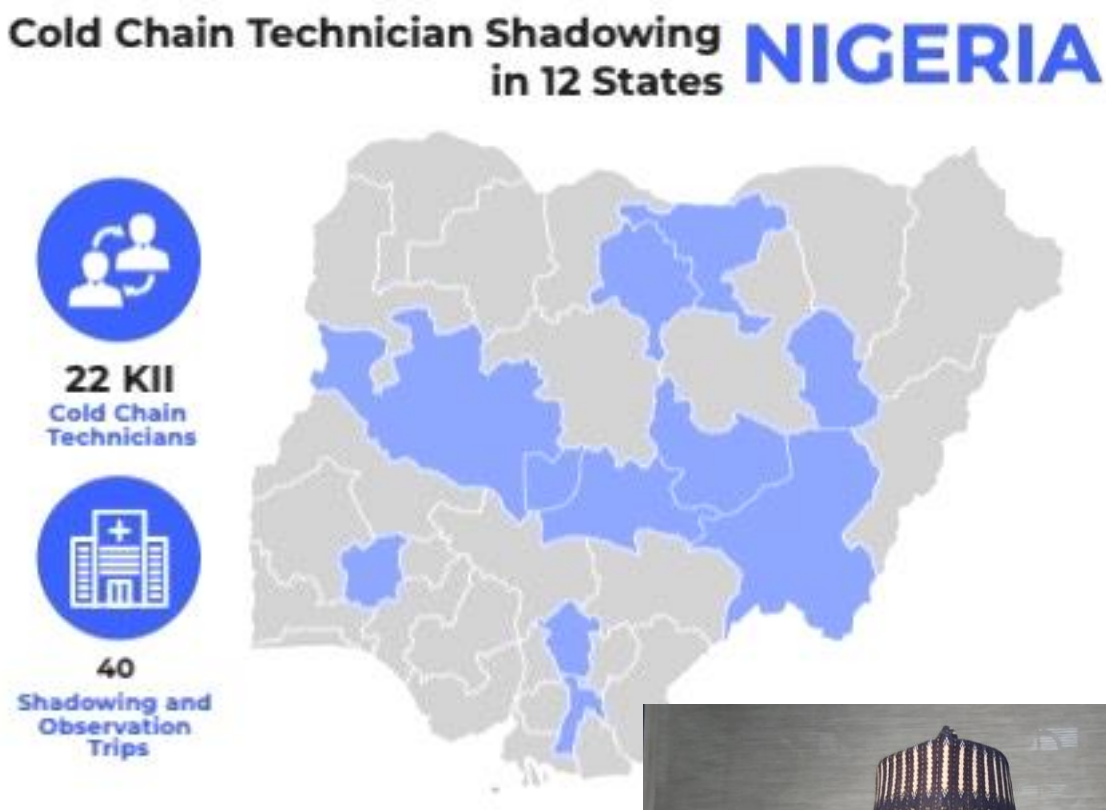
Inadequate interoperable **data and insights**

into the real-world performance of Cold Chain

Equipment (CCE) post deployment

Study Methodology & Approach

- To examine the status of cold chain maintenance practices and better understand a **"Day in the life"** of a **CCE technician** in low-resourced environments
  - ***Locations:*** *Kano, Jigawa, Niger, FCT Abuja, Nasarawa, Plateau, Gombe, Taraba, Abia, Enugu, Osun and Bayelsa*
  - ***Participants:*** *State Immunization and Logistics Officers, State Cold Chain Officers and Assistants, Cold Chain Technicians and Health Facility Personnel*
- Mix of KII, Direct Observations and Shadowing Approach was adopted to gain insights into the challenges they encounter in the course of their duty



Spotlight:

Engr. Faisal Bichi

Kano State Head CCE Engineer and Floating Assembly Manager

Engr Faisal's name is synonymous with unwavering dedication and commitment to safeguarding the health of communities in Kano State, Nigeria. As the Lead Cold Chain Engineer and Manager of the Kano State Floating Assembly, Faisal oversees a unit of 8 Biotechnicians responsible for the repair and maintenance of all medical devices and CCEs in an estimated 1400 health facilities in Kano state.

Responsibilities:

- Management of the Floating Assembly and Its Processes
- Prompt Repairs to Minimize Healthcare Disruptions
- Providing Bi-weekly Equipme Reports to SLWG
- Oversight of Over 1400 Healt

Insights into Gaps Impacting Effective Maintenance (Technicians Perspective)

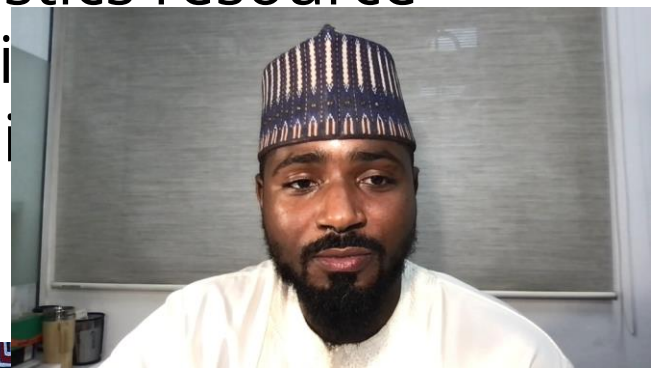
- ***Insufficient data on device functionality and maintenance history***
- ***Spare Parts and Logistics resources constraints***
- ***Limited number of technicians, geographic distribution and response times***

Call to Collaborate

Today, Faisal extends an earnest invitation to all of us, urging our collective participation in ***implementing solutions to these hurdles.***

Together, innovative approaches can be devised to enhance cold chain equipment maintenance in low resourced settings, guaranteeing the accessibility of secure, safe and potent vaccines and other critical medical equipment.

Let's strive for a future where impediments such as logistics resource limitations, data inadequacies, and technician distributi
obstruct our shared objective of safeguarding publi



Thank You!