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Improving the Supply Chain through Innovative Technologies: Experiences from Senegal using a Real-Time and Remote Temperature Monitoring Solution

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Agenda

- Introduction
- Vaccine Supply Chain in Senegal
- Implementation of the Temperature Monitoring Project with Innovative Technology through the Gavi INFUSE Program - Parsyl
- Implementation
- Results
- Project Expansion
- Data Analysis
- Questions

Introduction

- Temperature monitoring in the vaccine supply chain is part of the Effective Vaccine Management (EVM) evaluation criteria.
- Remote temperature monitoring devices should be used to ensure:
  - **good practices for storing and transporting vaccines at all levels**
  - **The real-time availability of temperature data allowing effective rapid action to be taken to reduce vaccine losses and optimize the use of the cold chain**
- Senegal/Gavi introduced innovative technology for remote temperature monitoring of vaccine storage and transport at all levels of the supply chain as part of its INFUSE program.

Main Objective

Improve Storage and Transport Conditions for EPI Vaccines in Senegal

Specific Objectives

1. Determine under what extent and under what conditions temperature variations occur throughout the supply chain.
2. Evaluate the performance of the equipment used through the lens of strengthening the cold chain.
3. Develop greater awareness among supply chain actors of vaccine temperature sensitivity during storage and transport.
4. Assess current practices and, if necessary, update National policy of vaccine storage and transport.

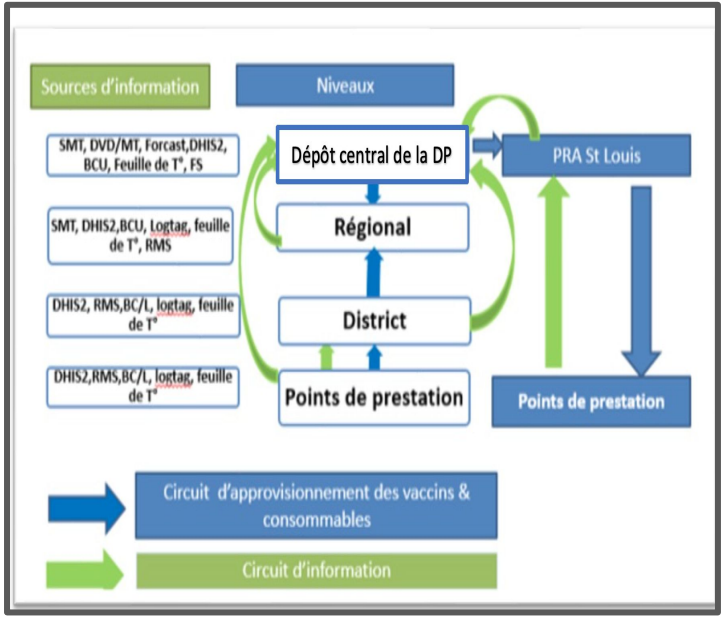
Country Supply Chain

Senegal is a West African state. It has:

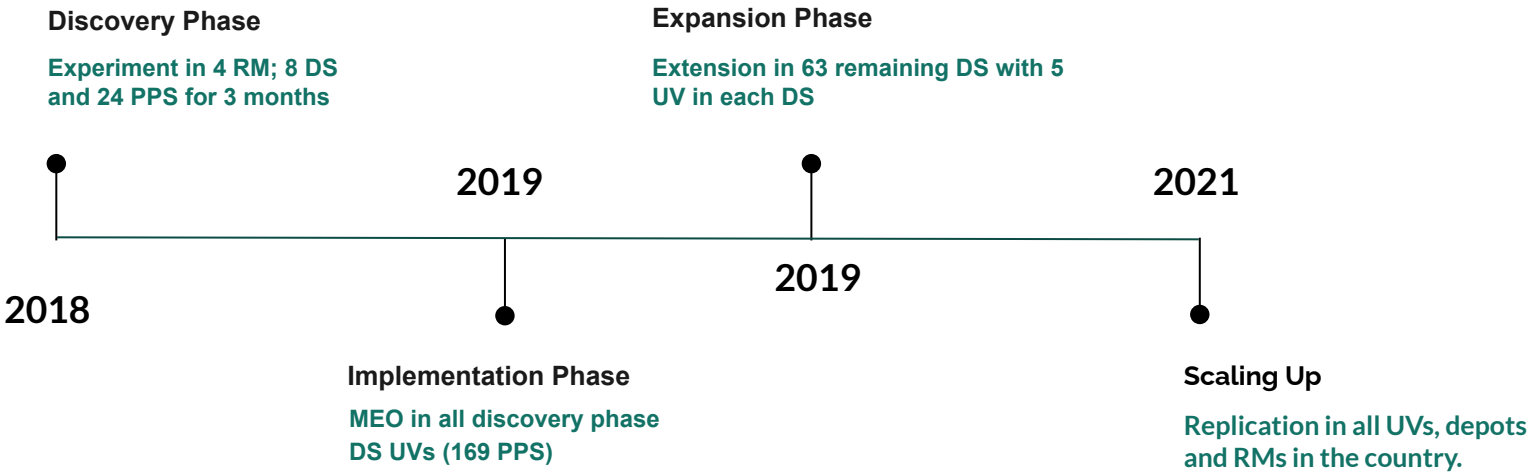
- 14 Medical Regions
- 79 Health Districts
- Around 1,823 private health facilities and hospitals including

The vaccine supply chain in Senegal is organized:

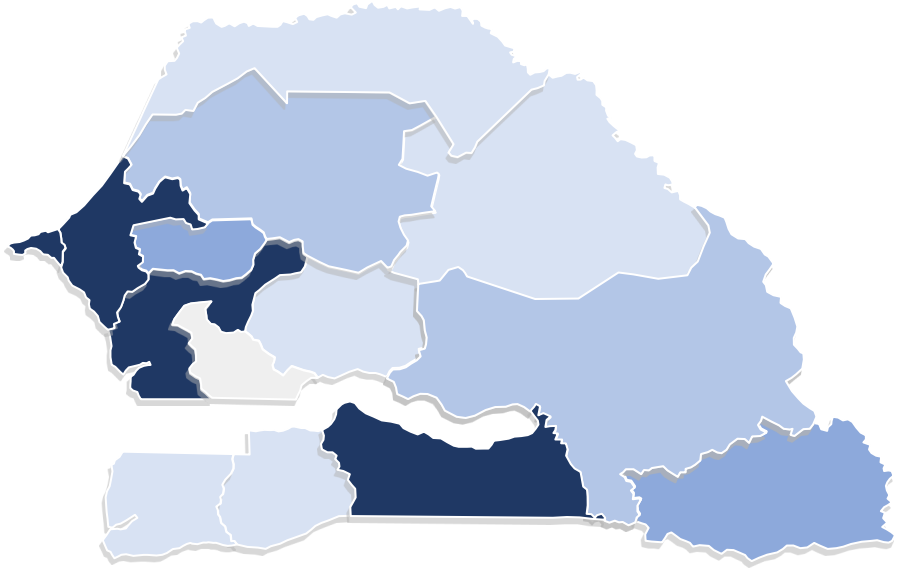
- Push model from Central repository to Regional repositories
- Pull model between Regions and Districts and between the latter and Health Posts

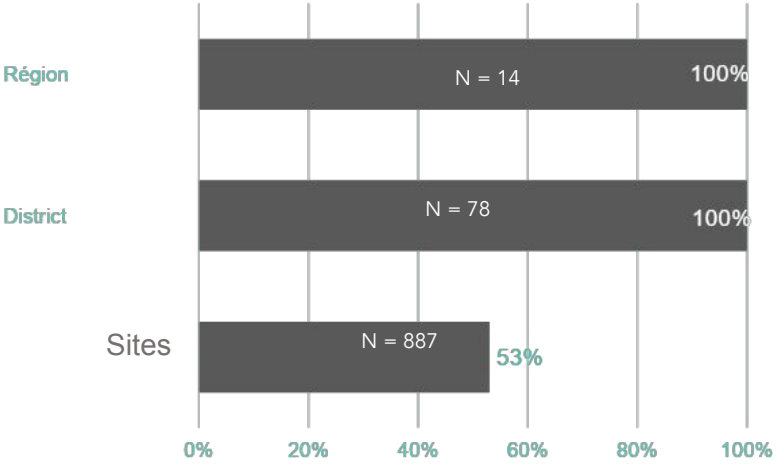


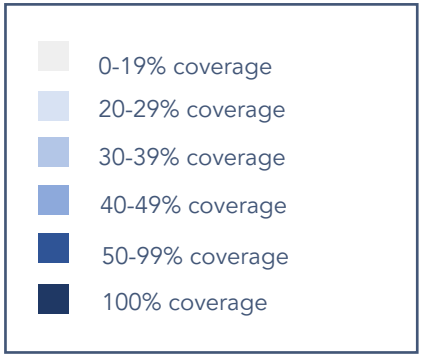
Implementation of the Temperature Monitoring Project with Innovative Solutions through the Gavi INFUSE Program - Parsyl



Country Coverage Map During the 3rd Phase







Implementation

- A training of 8 trainers on technology at Central Level
- Training of 1,408 users in the first 3 phases
- Two supervisions in the 1st and 2nd phase
- A mid-term evaluation
- An external evaluation
- Development of the scale-up plan
- Installation of new Parsyl equipment (Trek Pro and Gateway) in the 14 RM depots and user trainings
- Strengthen the capacities of District Teams for the enrollment of all users of Vaccination Unit (VU) devices throughout the territory
- Installation of new devices and replacement of old devices which is underway across the country

Results (1/4)

- Remote temperature monitoring is done at all levels
- The easy integration of the devices into the EPI routine facilitated by:
  - The good level of training of health workers in the management of vaccines and cold chain in the vaccination units;
  - Promoter flexibility;
  - The ease of use of the devices (Treks);
  - The quality of training on the solution;
  - Technological innovations related to the youth of most health workers in the field;
  - The willingness of program management to progress technologically

Results (2/4)

This innovative solution has created a positive behavioral change on the part of the agents in relation to temperature monitoring:

- The number of equipment door openings has decreased significantly thanks to the temperature reading by the mobile phone
- The possibility of early detection and correction of alerts at all levels
- The temperature reading variations are analyzed during the EPI reviews, discussed, and feedback given to the VUs concerned

Results (3/4)

All cold chain temperature data in one place (Parsyl Platform)

- With easy accessibility and use
- Ability to track temperature during storage, transport and vaccination sessions
- Incident reports are written on the platform by certain users

- Supervisors using the platform informed about alarms and cold chain status
- Data-driven decisions
- Supportive supervision needs identified

Results (4/4)

A reduction in losses in closed vials is reported by users.

- Improved availability of vaccines at VU level
- Improved vaccination coverage by location

Note: The quality of the data collected in the field unfortunately did not make it possible to illustrate this with supporting figures.

Difficulties in Implementation

- The slowness of absence of the internet network in certain places
- The low-robustness of first generation devices is a source of demotivation for some users
- Suspension of monitoring activities due to the pandemic
- Faulty Refrigerators (CCE PIS)
- Underuse of transport Treks

Expansion of the Project

Activities

- The solution will be expanded to all vaccine depots;
- Devices used since 2018 will be replaced with a new device;
- The old devices will be returned to the Central level to be recycled by the supplier;
- The new entities will have improved devices;
- Users will be retrained/trained;
- Post-training supervision will be organized;
- Implementation monitoring will be carried out at all levels

Monitoring / Evaluation

- Development of an activity monitoring plan;
- Monitoring of indicators;
- Integration of indicators in the Information Bulletin of the Division of Immunization (BIDI);
- Use of reports generated by the platform;
- Sharing monthly reports

Asset Performance Analysis

- The solution continuously assesses the performance of individual assets and creates regular reports summarizing cold chain performance, both overall and at the asset level
- Provides an overview of the entire cold chain and potential diagnosis of issues with specific assets
- Customizable based on specific performance metrics

Refrigerator Performance Matrix		
	Low variation	Strong variation
Constantly between 2-8 °C	424 refrigerators (78.8% of total)	25 (4.6%)
Often outside of 2-8 °C	32 (5.9%)	57 (10.6%)

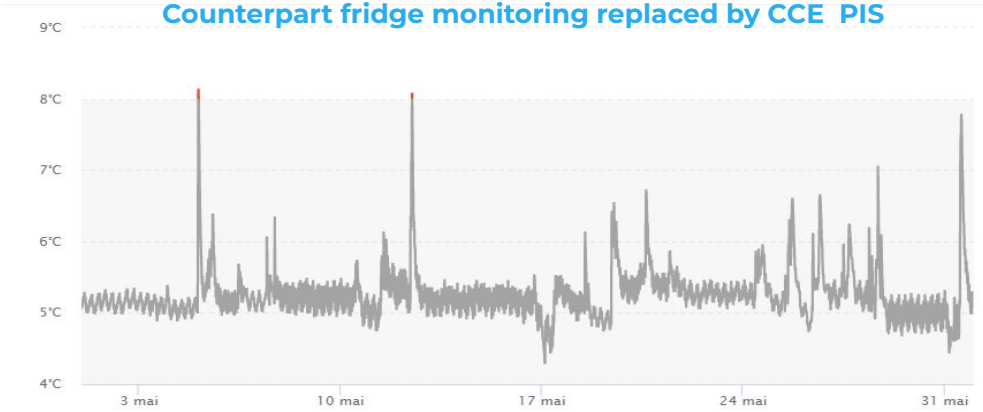
Analysis of the Performance of the Equipment Used

The use of this device allowed:

- Analyze the number of high and low alarms recorded by the CCE
- Evaluate the performance of existing types of equipment in the EPI
- To help the coordination to orient its choice on an efficient equipment model

Monitoring of an CCE PIS at the beginning of the project

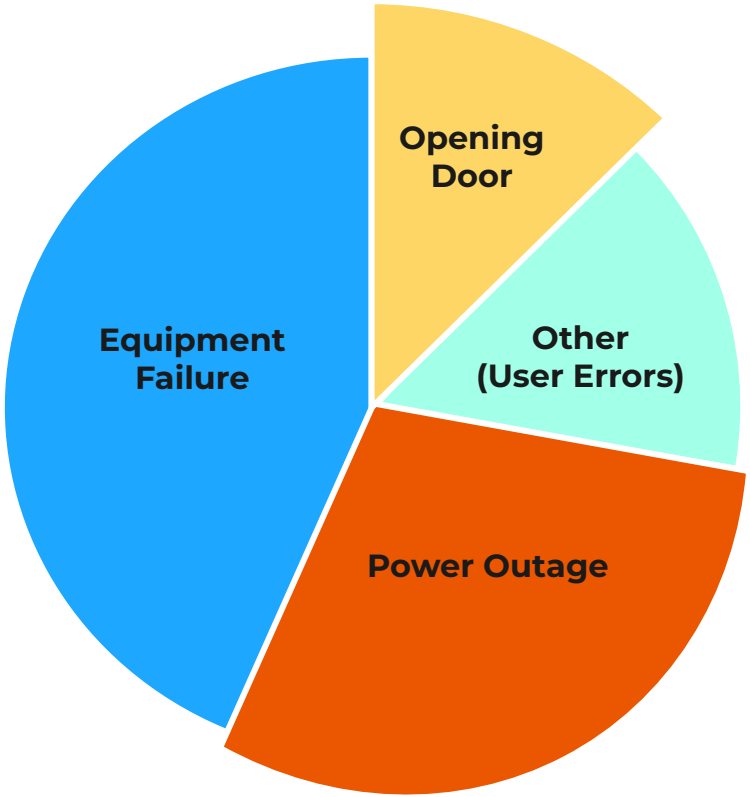
Counterpart fridge monitoring replaced by CCE PIS



Root Cause Analysis

Thanks to the incident reports entered on the platform:

- A detailed analysis of the causes of the problems and the actions carried out is created with the purpose of making decisions to improve CCE management




Merci.
Thank You.
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