Designing and Piloting the First Specimen Referral System in Burkina Faso using the National Postal System

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CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

ASLM
AFRICAN SOCIETY FOR LABORATORY MEDICINE

DAVYCAS International

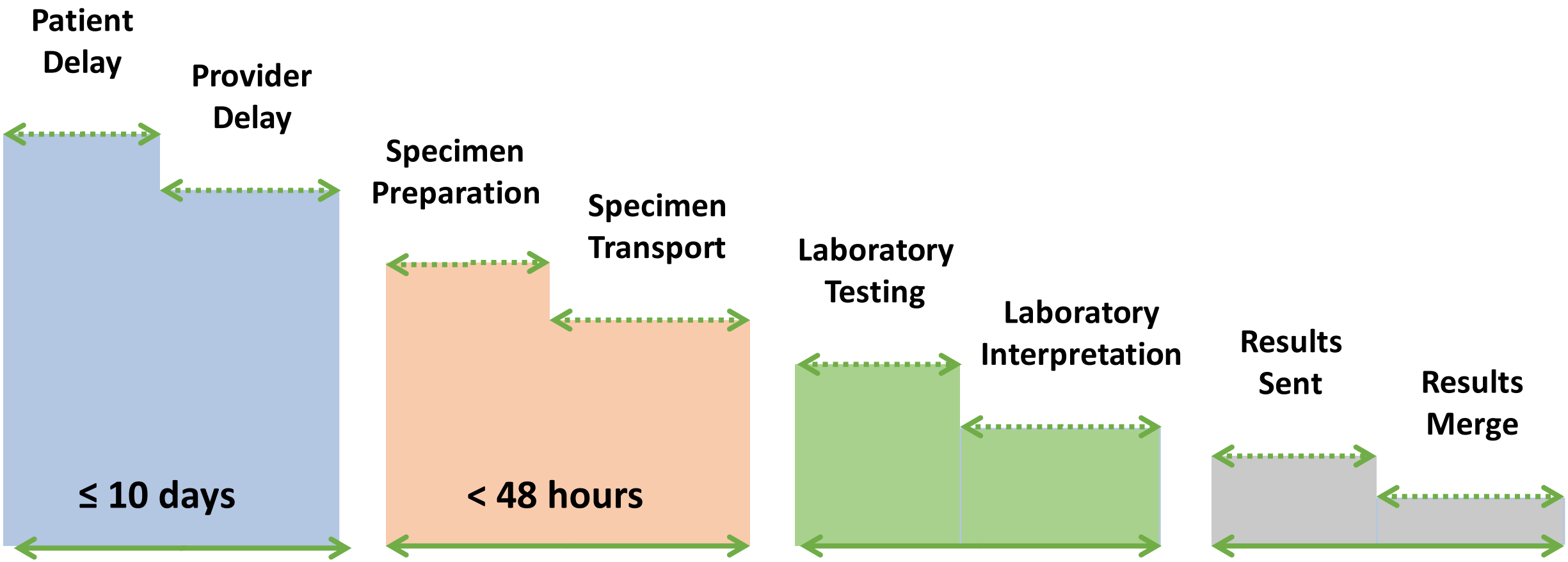
Introduction

- A national laboratory network with real-time bio-surveillance to detect and respond to infectious disease threats is required by International Health Regulation (IHR) and is also high priority for the GHSA

- Under GHSA, Burkina Faso is strengthening surveillance for severe acute respiratory infections (SARI), beginning with 4 sentinel sites since December 2016

- SARI specimens are generated at district hospitals but require transportation to the National Influenza Reference Laboratory (LNR-G) in Bobo-Dioulasso for testing

SARI Surveillance Steps



Source: CDC Presentation 'Evaluation of Severe Acute Respiratory Infection (SARI) surveillance — Burkina Faso'

Specimen Referral Networks are Key but Usually Inefficient and Difficult to Sustain

- Efficiency and effectiveness of a national network of laboratories is highly dependent on a robust referral system for specimens
- However, in countries with limited resources:

  → Existence of several parallel specimen referral systems

  → Laboratory staff are incentivized to transport specimens, taking them out of the laboratories and away from their duties

  → Low contribution of domestic funds finance these systems

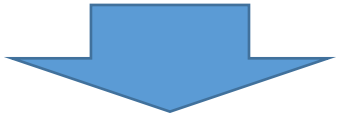
- Therefore, establishment of an integrated system of sustainable transport is a challenge

Background and Methods

- In June 2016, African Society for Laboratory Medicine (ASLM), with the Ministry of Health (MoH) and the U.S. Centers for Disease Control and Prevention (CDC) performed an assessment using standardized questionnaires at health centers, district laboratories, LNR-G and central-MoH to understand existing specimen referral mechanisms in-country

Findings:

- Fragmented, disease-specific systems without much communication among the stakeholders, main funders are CDC, WHO and Global Fund
- Transport mechanism was mainly lab/health staff carrying specimens to reference laboratories on public transport, which is costly and takes qualified staff away from their duties



Novel design for SARI specimen referrals

Background and Methods

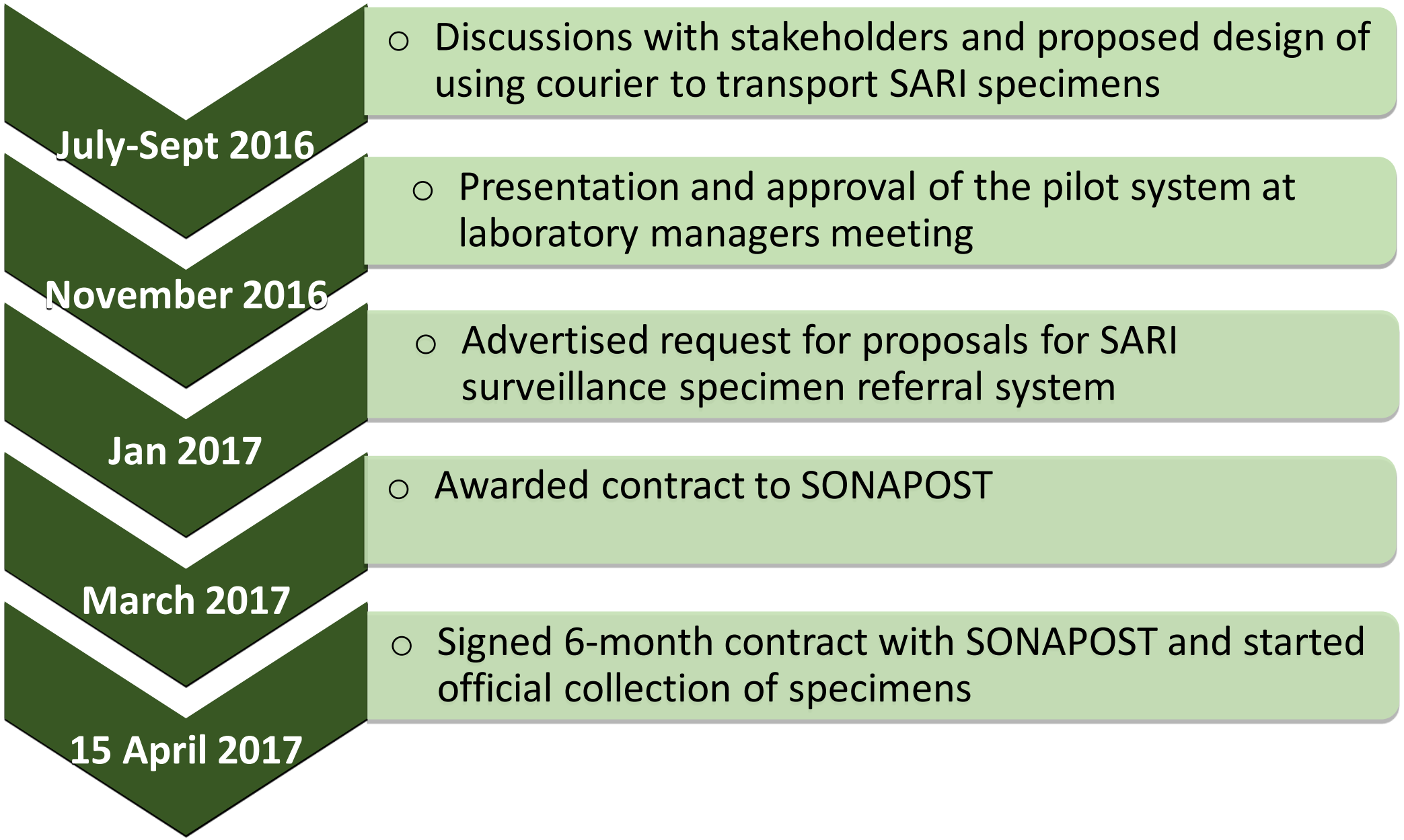
- ASLM, CDC and local organization, Davycas, then developed the design, approved by the MoH, to connect four district laboratories to LNR-G
- This design was tendered out and awarded to SONAPOST (national postal system), using their Express Mail service

Post' Eclair
ça va vite !

Photo: Sonapost courier bringing specimens to LNR-G, the national influenza reference laboratory

SONAPOST
Société Nationale des Postes

Timeline of Specimen Referral Setup

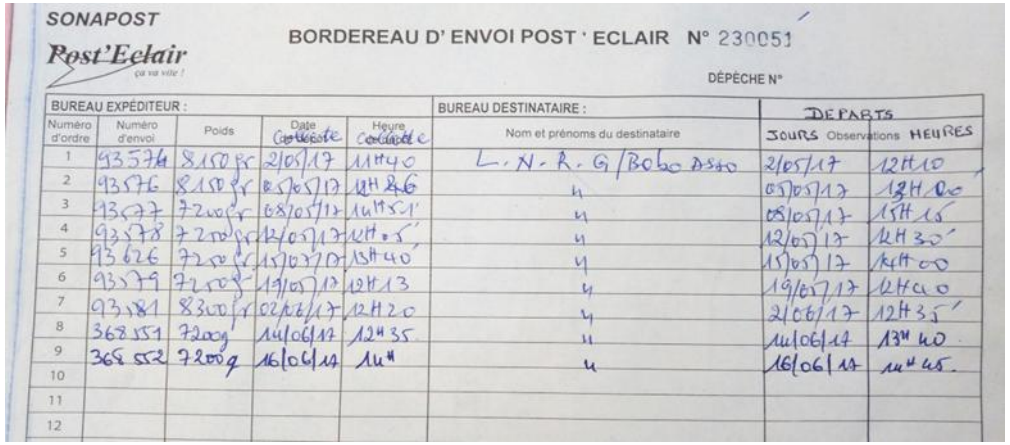


Summary of the Specimen Referral System

- Transporter: SONAPOST
- Types of samples: naso/oro pharyngeal swabs
- Sites covered: Koungoussi, Bousse, Bogodogo/Ouaga and Houndé districts
- Reference laboratory: LNR - G, Bobo-Dioulasso
- Delivery times: 24 hours from the collection
- Service provider collects the package on site, transports and delivers it to the reference lab, and returns the cooler box to the original site
- Contracted monthly minimum of 1,750,000 FCFA (~$3,200) for < = 100 packages

Monitoring and Evaluation

- Key performance indicators include:
  - **Increase access for laboratory-based surveillance** (measured by number of packages / specimens delivered)
  - **Deliver specimens in a timely manner** (% specimens delivered within 24 hours of pickup)
  - **Deliver specimens in a quality-controlled manner** (Non-conformity rate at the LNR-G due to transit)
- Good collaboration between two government structures (MoH and SONAPOST), which helps with sustainability



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BORDEREAU D' ENVOI POST ' ECLAIR N° 230051

DÉPÊCHE N°

BUREAU EXPÉDITEUR :					BUREAU DESTINATAIRE :	DEPARTS	
Numéro d'ordre	Numéro d'envoi	Poids	Date	Heure	Nom et prénoms du destinataire	JOURS Observations	HEURES
1	93574	8150gr	2/05/17	11H40	L.N.R.G/Bobo Dssto	2/05/17	12H10
2	93576	8150gr	03/05/17	12H26	"	03/05/17	13H00
3	93577	7200gr	08/05/17	14H51'	"	08/05/17	15H15
4	93578	7200gr	12/05/17	14H05'	"	12/05/17	12H30'
5	93626	7200gr	15/05/17	15H40	"	15/05/17	14H00
6	93579	7200gr	19/05/17	12H13	"	19/05/17	12H40
7	93581	8300gr	02/06/17	12H20	"	2/06/17	12H35'
8	368551	7200g	14/06/17	12H35	"	14/06/17	13H40
9	368552	7200g	16/06/17	14H	"	16/06/17	14H45
10							
11							
12							

Results

- The contract began 15th April 2017 initially for six-months. Through 23rd August, 79 packages containing 125 samples were transported to LNR-G, and all empty containers returned by SONAPOST

- Key aspects include:

- Delivery to LNR-G within 24-hours of site collection
- Training to ensure specimen quality and biosafety
- Cost-containment using volume-based package pricing
- Customized communication, data collection and tracking
- Ability to incorporate other specimen types (to realize cost savings and efficiencies)

Discussions

- Early results suggest the new system is promising for reliable and timely specimen referrals
- The three-tiered approach to assess, design and implement a referral network can serve as a model for other specimens types in Burkina Faso and elsewhere, as can the use of national postal services
- Further evaluation was carried out and key performance indicators were maintained at a high level and the specimen referral system is one of the successes of the SARI surveillance system
- System is flexible and was used successfully in the recent dengue outbreak

- Lab staff have been financially incentivized to carry specimens, and taking away this incentive in the new system may be unpopular: need to engage laboratory staff early on and give them opportunities to input into the system
- Other health programs may not buy into the new system: need to create a clear investment case and find a champion in the MoH to advocate
- Financing mechanism for donors to pool resources does not currently exist: this will need to be considered and a proposal made
- SONAPOST's ability to scale-up and work with MoH to track performance: need to continue to engage with SONAPOST as a partner in this system – bring SONAPOST aggregated demand and see if they can respond

→ Advocacy for scale-up of SONAPOST system and integration across all disease/ surveillance platforms, such as:

- Meningitis, measles, yellow fever, polio, rubella, rotavirus, HIV and TB testing, typhoid, cholera, shigella

- Or for transporting blood products, EQA/PT panels

Acknowledgements

- Burkina Faso Ministry of Health/Technical Directorates
- CDC
- ASLM
- DAVYCAS International
- SONAPOST
- Consultants
- Sentinel sites staff

Photo: Sonapost representative at a SARI training in Boussé District with the District Chief Medical Officer and National Surveillance Officer for SARI surveillance