Who is FIND?
FIND at a glance

- 190+ people working toward a world where diagnosis guides the way to health for all people
- Headquartered in Geneva, Switzerland
- Country offices in key LMICs
- Partnerships with industry, research/academia, government agencies and NGOs

Our mission: Turning complex diagnostic challenges into simple solutions to overcome diseases of poverty and transform lives
We bridge science with patients to transform lives

Catalyze development
- Dynamic needs definition
- S4S: Support programme for manufacturers

Guide use & policy
- Clinical trials
- WHO evidence & guideline development

Accelerate access
- National policy
- Roll-out planning
- Gap analysis and solutions
- QA tools and strategies

Shape the agenda
- Impact of diagnostics
- Diagnostic ecosystem changes
- Emerging diagnostics topics

SCIENCE
PRODUCTS
SOLUTIONS
PATIENTS

Tuberculosis
Emerging Threats (AMR, Outbreaks)
Neglected Tropical Diseases
Hepatitis C and HIV
Malaria/Fever
E-Diagnostics

Emerging Threats (AMR, Outbreaks)
Neglected Tropical Diseases
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E-Diagnostics
Diagnostics for Epidemic Preparedness
FIND’s Outbreak Strategy
Diagnostics play a unique role in outbreak preparedness and response

- Monitoring
- Real-time epidemiology

- Early warning
- Infection control

- Triaging
- Response management
From a reactive to a proactive outbreak response through diagnostic preparedness

Technical solutions
Comprehensive and flexible diagnostic solutions for surveillance and outbreak detection

Response speed
Networks and structures for the rapid development, introduction and scale up of new diagnostics ahead of the next outbreak

Market sustainability
Procurement and supply mechanisms to ensure affordability and availability of critical diagnostics

FIND will deliver innovative diagnostic solutions and coordinate partners to address systemic challenges ahead of the next outbreak
Nine priority interventions to support the response to new and recurring outbreaks

**Technical solutions**

- **Critical assays**
  - 2 new assays to address critical gaps in diagnostics for priority pathogens (2021)

- **Comprehensive platforms**
  - 2 technologies built out into comprehensive and flexible response platforms (2022)

- **Virtual specimen bank**
  - Online virtual specimen bank for at least 4 priority pathogens (2019)

- **Connectivity solutions**
  - Fully interconnected, real-time data reporting

**Response speed**

- **Global forum**
  - Go-to partner network and working groups for coordinated action (2018)

- **In-country experts**
  - Networks of in-country diagnostics experts in at least 2 regions (2020)

- **Sample sharing**
  - Established sample sharing commitments with relevant countries and improved regulatory pathways (2020)

**Market sustainability**

- **Manufacturing**
  - Outbreak pathogens integrated into panels for larger market and subsidized dedicated manufacturing lines (2022)

- **Global supply chain**
  - Predefined, rapid procurement and stockpiling with agencies with global reach and supply chain capacity (2022)

Led by FIND  Led by others
Case study:
WHO R&D blueprint initiative
Pathogen diagnostic landscapes: Informing TPPs and RFPs

- Perform pathogen, technology and partner landscapes to assess critical needs and gaps in diagnostics
- Support WHO TPPs to inform research and development efforts

**WHO Collaborative Landscapes**
- MERS-CoV
- CCHF
- Lassa
- Filoviruses
- Nipah

**Additional diagnostic landscapes**
- Rift Valley Fever
- SARS
- Zika
- Measles
- Influenza

Diagnostic R&D prioritized by needs, impact and feasibility assessments

Initiatives gated by funding and open RFP process
Limited diagnostic needs are addressed through available tests

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<thead>
<tr>
<th>Disease</th>
<th>TPP</th>
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Test:  
- **Not available**  
- **Under-development / Lab-based**  
- **Available (but might be limited/inadequate)**  
- **Not needed**  
- **TBD**

Case study:
Lassa fever virus
In the reporting Week 09 (February 26-March 4, 2018) thirty five new confirmed cases were recorded from five States Edo (19), Ondo (5), Bauchi (1), Ebonyi (9), and Plateau (1), with seven new deaths in confirmed cases from three states Ondo (2), Edo (2), and Ebonyi (3).

From 1st January to 4th March 2018, a total of 1121 suspected cases. Of these, 353 are confirmed positive, 8 are probable, 723 are negative (not a case) and 37 are awaiting laboratory results (pending). 18 States are active (Edo, Ondo, Bauchi, Nasarawa, Ebonyi, Anambra, Benue, Kogi, Imo, Plateau, Lagos, Taraba, Delta, Osun, Rivers, FCT, Gombe and Ekiti) - Table 1/ Figure 1.

Since the onset of the 2018 outbreak, there have been 110 deaths: 78 in positive-confirmed cases, 8 in probable cases and 24 in negative cases. Case Fatality Rate in confirmed and probable cases is 23.8% - Table 1.
Lassa fever overview

- Arenavirus: Lassa virus
  - High genomic variability

- Endemic in West Africa
  - First discovered in Nigeria in 1949
  - 100,000 – 300,000 cases, 5,000 deaths/year

- Transmission: rodent-to-human, human-to-human
  - Rodent reservoir w/ extensive reach in continent

- Clinical manifestations
  - Range from acute febrile illness to hemorrhagic and other severe cases
  - Case fatality rate: 20-25% of hospitalized cases

- Prevention and control
  - Reduce the potential for human-rodent transmission

- Diagnosis
  - Clinical and epidemiological (illness, exposure)
  - Laboratory: RT-PCR, Ag or IgM ELISA

# Few commercially available diagnostics for Lassa virus

<table>
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<tr>
<th>PCR Reagent Kits</th>
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<th>Marburg</th>
<th>CCHF</th>
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**Summary**

- **RUO:** Research Use Only
- **EUA/EUAL:** Emergency Use Authorization (FDA/WHO)
- **CE:** European Conformity (EU)

*Pan-LASV RDT: RUO
FIND solutions for Lassa diagnostics

Pathogen diagnostic landscape
- **Goal:** Support WHO target product profile (TPP) to inform research and development
  - Perform pathogen, technology and partner landscapes to assess critical needs and gaps in diagnostics

Lassa use case review with CEPI/FIND collaboration
- **Goal:** Assess use cases to identify and prioritize diagnostic development
  - Diagnostics for: surveillance, clinical diagnosis, vaccine development

RFP: Menu Expansion for Existing Platforms for Emerging Diseases
- **Goal:** Facilitate rapid assay development to respond to future outbreaks
  - Menu expansion of near patient nucleic acid testing
  - Semi-open business model
Demonstration study:
Integrated surveillance diagnostic & data connectivity

BioFire Global Fever Panel
(BioMerieux)
- Combined nucleic acid purification and nested multiplex PCR
- Simultaneous detection of multiple infectious agents:
  - CHIKV, CCHFV, DENV, EBOV, LASV, MARV, WNV, YFV, ZIKV, B. anthracis, F. tularensis, Leptospira spp., S. enterica serovar Typhi/Paratyphi, Y. pestis, L. donovani, Plasmodium spp.

Demonstration study: Assess utility of the platform and assay for surveillance and connectivity in LMICs

Looking for:
- Evaluation partners/networks
- Funders

Thank you

Funding gratefully received from the
UK aid from UK Government

Cassandra Kelly-Cirino, Director of Emerging Threats
cassandra.kelly@finddx.org

Devy Emperador, Scientific Officer, Emerging Threats
devy.emperador@finddx.org
Invitation:
Discussion of Lassa Dx Needs

Date: 13 March 2018
Time: 7:00 am – 8:00 am
Location: Radisson Blu Hotel
Kazanchis Business District
Kirkos Subcity Kebele 17/18
Diagnostics for Epidemic Preparedness

Devy M. Emperador, MPH
Scientific Officer – Emerging Threats
Foundation for Innovative New Diagnostics (FIND)

ICREID 2018
12 March 2018
Addis Ababa, Ethiopia