



**Joint Meeting of the Working Groups on Surveillance
(Laboratory & Epidemiology)**

15-17 April 2019 – Annecy, France



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THE INSTITUT PASTEUR OF DAKAR

Institut Pasteur de Dakar 1924 - 2018

Senegalese Non-for-Profit private
Foundation of Public Interest

94 years in Senegal



IPD – VISION, MISSION & AMBITION

VISION

« Prevent infectious & chronic diseases through excellence in Research, Education & Public Health »

MISSION

« Contribute to public health in Senegal and Africa through research, training and education, expertise and vaccine production »

AMBITION

« Detect, Prevent & Respond to Epidemics »



IPD – Research Areas

- ANTIMICROBIAL RESISTANCE
- EMERGING PATHOGENS
- DIAGNOSTICS
- MODELING
- ENTOMOLOGY
- MOTHER & CHILD HEALTH
- VACCINOLOGY



IPD – Public Health Activities

- **International reference centers**
 - WHO collaborating center for arboviruses and viral hemorrhagic fever
 - WHO inter-country reference laboratory for poliomyelitis
 - FAO reference center for Antimicrobial Resistance
 - Cholera ?
- **National reference centers**
 - Influenza and respiratory viruses
 - Measles
 - Rabies
 - Rotavirus
 - Enterobacteria



IPD – Cholera Activities

- **UNICEF « Environmental surveillance »**
 - 100 samples, 5 field trips (Guinea Bissau 3 times), RDC, Benin
 - TDR Crystal VC for environmental surveillance.
- **UNICEF « Environmental surveillance and human mobility modeling »**
 - 400 samples, 2 localizations in NIGER (Kollo, Madarounfa)
TDR Cholera SD Bioline
- **AWATOX**
 - Coastal water of the Presqu'île du Cap Vert in DAKAR
80 samples, Culture, PCR, AMR (*V. cholerae*, *V. parahaemolyticus*, *V. vulnificus*)



IPD – Cholera Activities

- **Identification of Atypical El Tor *V. cholerae* O1 Ogawa Hosting SXT Element in Senegal, Africa.**

From cholera outbreak in 2004-2005, Sambe B. *et al.*, *Front. In Microb* (2017)

- **Dynamics of cholera epidemics from Benin to Mauritania**

Moore S. *et al.*, *PLoS Negl Trop Dis.* (2018)

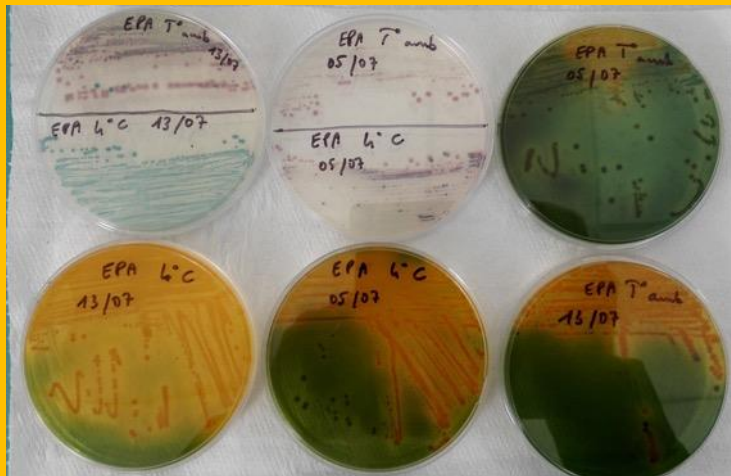
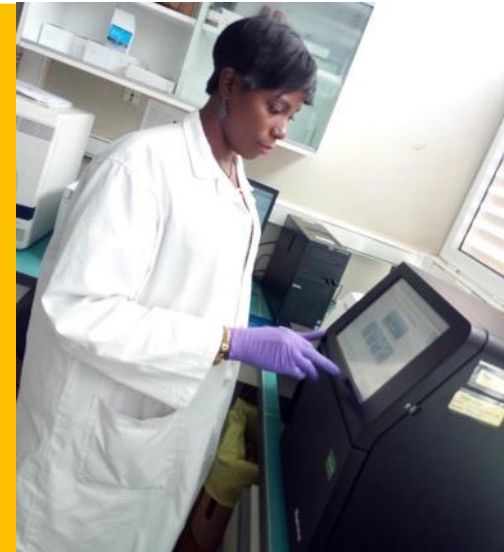
- **Mobile phone data highlights the role of mass gatherings in the spreading of cholera outbreaks**

Finger F. *et al.*, *PNAS* (2016)



IPD – Lab capacity

- Culture gold standard
- PCR, qPCR, WGS MiSeq
- Maldi-Tof (BioMérieux) with Hospital Principal de Dakar
- Antibiotic resistance (Adagio)
- BioBanking -80C
- Bio-informatic, Biostats, DB management (4 years Group)





IPD – Innovation



BSL 3 Truck



Truck mini lab



IPD – Innovation



**The Lab in a Suitcase
Ebola Rapide tests (15 mn)**



Science Museum in London

IPD- Detection and responses to epidemic Conclusion

- **ECOSYSTEM to detect, respond and control epidemics with capacities in:**
 - **Early detection**
 - **Research**
 - **Deployment**
 - **Vaccine production**

PERSPECTIVES

- **More involvement in cholera surveillance in Western and Central Africa**
- **Capacity building of cholera AMR Surveillance in others WCA**
- **What is next to the antibiotics era?**
- **Regional Cholera transmission Modeling including BigData derived human mobility**

Applications Now Being Accepted!

Deadline: March 2, 2019

Phage Laboratory Training Workshop

By 2050 an estimated 10 million people will die each year from antibiotic resistant infections – almost 90% of those in the developing world. To address this, Phages for Global Health is teaching scientists in West Africa how to develop cheap, naturally occurring antibiotic alternatives – phages – that are effective against antibiotic-resistant bacteria.

When: July 7 – 20, 2019

Where: Kwame Nkrumah University of Science and Technology (KNUST) in Kumasi, Ghana



Apply through www.phagesforglobalhealth.org

- **Issa N'Diaye admitted to the Phage training workshop as part of his PhD planification of AMR in West Africa (UCAD/IPD/IRD).**