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MEDILABSECURE
Regional Meeting

January 20th-24th 2020

Dakar, Senegal

MediLabSecure

Project coordinated by Institut Pasteur

In collaboration with

INIA
Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria

French National Research Institute for Sustainable Development
IRD
Institut de Recherche pour le Développement
FRANCE

AVIAGIS

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with the support of

IZSAM G.CAPORALE TERAMO

Event co-organized with

Institut Pasteur de Dakar

Foreword

Dear Partners,
Dear Colleagues,

First of all, on the behalf of the MediLabSecure consortium, a very warm welcome to this first Regional Meeting of the second phase of the MediLabSecure project!

The Kick-Off Meeting which was held on July 2019 in Paris successfully initiated the integration of the new members from Sahel within the network. To continue on this path, it was particularly important for us to organize this first regional meeting in this new targeting Region to promote the project and its outcomes.

Gathering 8 countries members from Maghreb and Sahel (Algeria, Burkina Faso, Mali, Mauritania, Morocco, Niger, Senegal & Tunisia), we are glad to mix previous and new members to faciliate the integration of the new comers. This meeting has also been organised, enhancing the "One Health" spirit of the network, with the objective to reinforce the multidisciplinary interactions in your different countries and in the overall region.

In line with the previous suggestion raised by the network laboratories' and public health institutions' representatives, this meeting will be mainly focus on Rift Valley Fever virus (RVFV) and has been designed to address clinical, entomological, epidemiological, diagnostic as well as human and animal health aspects of this regional emerging zoonosis through plenary sessions, group exercises and specific trainings.

Lastly, we take this opportunity to warmly thank the Institut Pasteur de Dakar , Professor Amadou Alpha Sall, and his staff for their precious and valuable support and contribution in the organization of this event. As usual, it has been a real pleasure to work hand-in-hand with you.

We wish you all a fruitful time of intersectoral and regional exchanges.
With your contribution, let's make it a success story!

The MediLabSecure coordination team

SUMMARY


MediLabSecure
A multidisciplin
netwo

MONDAY 20/01 — Hotel Jardin Savana — Day 1

08:00	REGISTRATION		
08:30	Official opening		
09:30	Presentation of Institut Pasteur de Dakar & its emergency field response equipment	**A.Sall** (Institut Pasteur de Dakar)	
10:00	COFFEE BREAK		
10:30	Presentation of the MediLabSecure project	**V. Lagal** (Institut Pasteur)	
11:00	Presentation of the EU CBRN CoE Initiative	**I. Daoust-Maleval** (European Commission)	
11:30	Strenghtening public health laboratories in the WHO African Region : A critical need for disease control	**T. Tieble** (WHO Senegal Office)	
11:45	MediPIET today	**C. Martin de Pando** (National Center for Epidemiology, Madrid)	
12:00	Presentation of the Senegalese One Health Task Force	**TBC**	
12:30	GROUP PICTURE		
12:45	LUNCH		
14:00	Epidemiology Training	**P. Calistri** (IZSAM)	
15:30	COFFEE BREAK		
16:00	Epidemiology Training	**P. Calistri** (IZSAM)	
18:00	END OF DAY		

CAPTION

- Plenary session
- Training
- Networking activity

REGIONAL MEETING

January 20-24, 2020
Dakar, Senegal

MediLabSecure

TUESDAY 21/01 Hotel Jardin Savana

Day 2

08:30	**RIFT VALLEY FEVER : A REGIONAL PERSPECTIVE**	
08:30	Rift Valley Fever outbreaks in West Africa : Challenges and perspectives	**A. Sow** (WAHO)
08:50	Rift valley fever vectors: The sahelian scenario	**D. Diallo** (Institut Pasteur de Dakar)
09:10	Rift valley fever outbreak in Niger : a real One Health challenge''	**A. Lagaré** (CERMES)
09:30	Spatial modeling of Rift Valley fever vectors in Senegal	**C. Talla** (Institut Pasteur de Dakar)
09:50	RVF, epidemics, surveillance and perspectives	**B. Yahya** (ONARDEL)
	Moderators - MA. Jimenez Clavero & E. Perez Ramirez (INIA)	
10:30	**COFFEE BREAK**	
11:00	Introduction to Rift Valley fever Risk Assessment Exercise & Pre-test	**MG. Dente** (ISS) **S. Declich** (ISS) **L. Amato** (ISS)
12:00	**LUNCH**	
13:30	Rift Valley fever Risk Assessment Exercise	**MG. Dente** (ISS) **S. Declich** (ISS) **L. Amato** (ISS)
15:30	**COFFEE BREAK**	
16:00	Restitution of Rift Valley fever Risk Assessment Exercise	**MG. Dente** (ISS) **S. Declich** (ISS) **L. Amato** (ISS)
16:30	Speed-up the network! (Posters session)	
17:30	MediLabSecure Charter of values collaborative design	**Coordination team** (Institut Pasteur)
18:30	**END OF DAY**	

WEDNESDAY 22/01 — Hotel Jardin Savana — Day 3

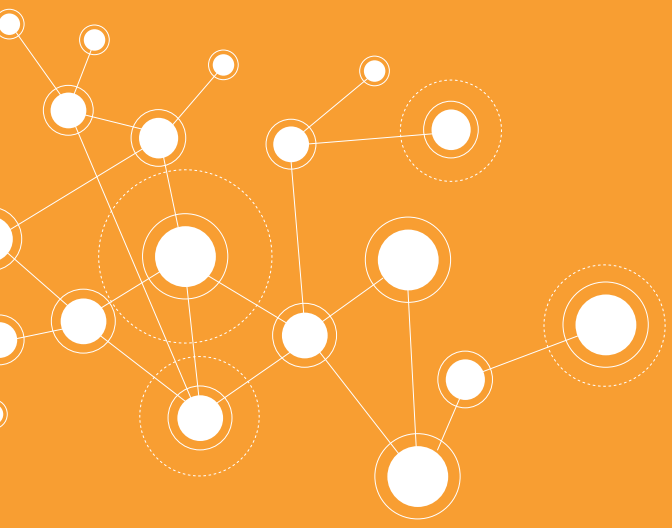
08:15	Restitution of Charter of values collaborative design	**Coordination team** (Institut Pasteur)
08:30	The implementation of the Nagoya Protocol within surveillance activity	**C. Dias Vilela** (Institut Pasteur) **B. Youm** (Institut Pasteur)
10:30	COFFEE BREAK	
11:00	Risk communication session	**TBC**
12:00	LUNCH & PARALLEL SESSIONS	
14:00	Outbreak Response Exercise	**G. Mikaty** (Institut Pasteur) **C. Peyrefitte** (Institut Pasteur de Dakar)
16:00	COFFEE BREAK	
16:30	Restitution Outbreak Response Exercise	**G. Mikaty** (Institut Pasteur) **C. Peyrefitte** (Institut Pasteur de Dakar)
17:30	CLOSING CEREMONY	
18:00	COCKTAIL	

THURSDAY 23/01 — Institut Pasteur de Dakar — Day 4

09:00	GIS for spatial risk mapping and early warning Upon invitation **G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)	Medical Entomology for non-entomologists Upon registration **V. Robert** (IRD) **M. Picard** (IRD)
10:30	COFFEE BREAK	
11:00	GIS for spatial risk mapping and early warning Upon invitation **G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)	Medical Entomology for non-entomologists Upon registration **V. Robert** (IRD) **M. Picard** (IRD)
12:00	LUNCH	
13:30	GIS for spatial risk mapping and early warning Upon invitation **G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)	Medical Entomology for non-entomologists Upon registration **V. Robert** (IRD) **M. Picard** (IRD)
15:00	COFFEE BREAK	
15:30	GIS for spatial risk mapping and early warning Upon invitation **G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)	Medical Entomology for non-entomologists Upon registration **V. Robert** (IRD) **M. Picard** (IRD)
17:00	END OF DAY	

FRIDAY 24/01 — Institut Pasteur de Dakar — Day 5

08:00	GIS for spatial risk mapping and early warning Upon invitation	**G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)
10:00	COFFEE BREAK	
10:30	GIS for spatial risk mapping and early warning Upon invitation	**G. Hendrickx** (Avia-GIS) **C. Marsboom** (Avia-GIS)
12:00	END OF DAY	



DETAILED AGENDA

Monday, January 20th

Day 1

8h00 - 12h30

Opening ceremony

We are honoured to introduce this first regional meeting with an official opening from the representatives from the Ministry of Health, Ministry of Livestock and Animal Production and the Ministry of the Environment as well as representatives from the European Union.
The offical opening will be followed by a presentation of the Institut de Dakar and its emergency field response equipment, delivered by Dr Amadou Alpha Sall, General Administrator of the Institute.
The MediLabSecure coordination team will then provide a general overview of this second phase of the project to give the audience a better understanding of the activities planned and challenges ahead.
During the second half of the morning, Isabelle Daoust-Maléval, Programm Manager at DG-DEVCO European Commission, will put the project into perspective by focusing on the EU Chimical, Biological, Radiological and Nuclear (CBRN) risks mitigation Centers of Excellence (CoE) Intitiative under the umbrella of which the project is supported.
The rest of the morning will be dedicated to two specific presentations from two MediLabSecure connected projects (STRONGLABS and MediPIET) in order to better enhance interactions and synergies, followed by a focus on the importance of the «One Health» Approach in the prevention of vector-borne diseases in West Africa with a presentation of the Senegalese One health Task Force.

14h00 - 18h00

Epidemiology Training

In order to complement the capacity building effort on rapid risk assessment, a specific focus on principles and methodologies for qualitative risk assessment will be ensured during the Epidemiology training session.

Day 2

Tuesday, January 21st

8h30 - 10h30

Rift Valley Fever: A Regional perspective

On January 21st, the first part of the morning will be dedicated to a plenary session on RFV, the main theme of the Regional Meeting which was pointed out as a concern by its participants during on-going discussions and previous meetings. Indeed, today, it is generally acknowledged that RVF is enzootic throughout the African continent.
In this context, this session will aim at giving a comprehensive picture of the situation and challenges ahead regarding this epidemic zoonotic disease in West Africa at regional and national level.

11h00 - 16h30

Multisectoral Risk Assessment Exercice

The Multisectoral Risk Assessment (MRA) Exercise is conceived to foster small group discussion on the status of RVF surveillance in the region and to assess level of risk at country level with the support of the methodology applied by FAO for the Risk Assessment for RVF in Niger (March 2017).
We have adopted a ToT approach aimed at consolidating capacities and support sustainability: MediLabSecure Focal Points who have already taken part in the previous MRA Exercise on RVF in Tunis (July 2017) have been involved in the development and execution of the Exercise in Dakar.

16h30 - 17h30

Speed-up the network!

During this 1-hour session, 8 selected posters from Institutions members of the network will be used as a basis of discussion on the general topic of surveillance, diagnostic and control of arboviruses and their vectors. It will be the opportunity to enhance networking and intersectoral exchanges within network members.

17h30 - 18h30

Charter of Value collaborative design

To finish this 2nd day, all network members will be invited to actively participate in the design of the MediLabSecure Charter of Value. The idea is to encourage and foster the network ownership and sustainability by collaboratively brainstorming on the values, aspirations and commitments which unite the network.

Wednesday, January 22nd

Day 3

8h30 - 11h00

The implementation of the Nagoya Protocol within surveillance activity

After the restitution of the Charter of values session from the previous day, the morning of January 22nd will focus on the Nagoya Protocol. During this session, the Nagoya Protocol ground principles will be defined and an overview of the implementation of such Protocol in each country represented in this meeting will be detailled. Practical cases focusing on the impact of the Nagoya Protocol on surveillance activities will be presented and more particularly on the collection, use and distribution of samples.

12h00 - 14h00

Parallel sessions

During lunch time, parallel sessions will be organized per work package. These sessions will consist in technical discussions about future activities and needs.

14h00 - 18h00

Outbreak response exercise

The rest of the day will be dedicated to the outbreak response exercise. The short tabletop exercise will simulate an outbreak of an unknown viral disease in the region. The participants will be asked to form groups representing the different fields of expertise (biologists, entomologists, veterinarians, epidemiologists) and will have to respond to this emergency in a ludic manner. Eventually, the exercise will address the strategies and terms of communication to apply during outbreaks which will be carried out in the same role-playing game format.
The educational tabletop exercise will aim at raising awareness on the importance of the Intersectoral One Health Approach and sensitizing the participants to the chain of information transmitted during outbreaks management through a role-playing game.

Day 4

Thursday, January 23rd

9h00 - 16h30

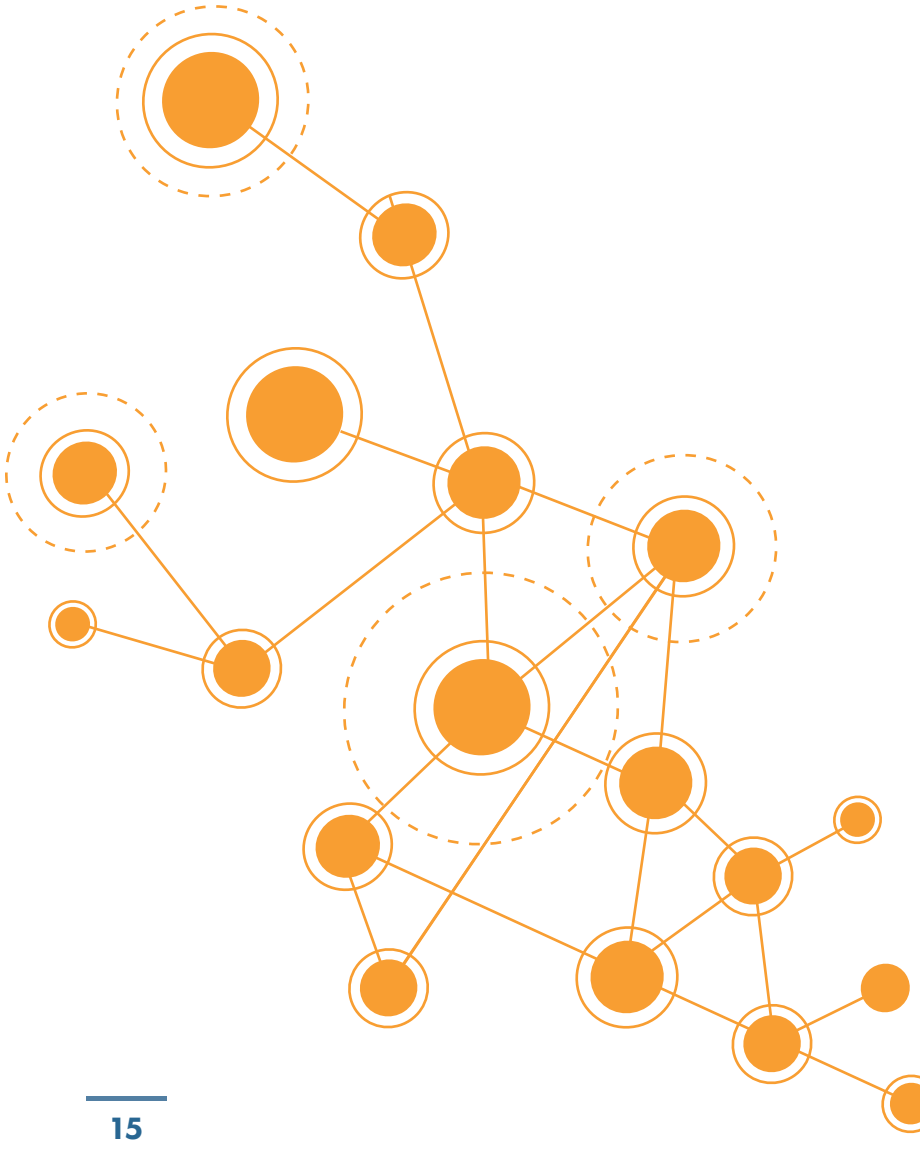
"Medical entomology for non-entomologists" Training

On January 23rd, a one day training on basic medical and veterinary entomology is proposed to all MediLabSecure people who are not specialist in entomology. It is open on a voluntary basis.
Through a theoretical and practical approach, this training will achieve an understanding of insects in general and vectors in particular: what are they, what makes a vector, what are their constraints and their comfort range, how do they interact with other species and humans, how entomologists manage with such enormous biodiversity, how to identify insect species, how to perform a relevant sampling, why so many trapping system, how to deal with invasive species, etc.
Examples of mosquitoes and ticks will be exposed under binocular microscopes. Short case studies will be discussed interactively.
At the end of the day, the trainees will be in a position more favourable to discuss on equal terms with crazy entomologists.

9h00 - 16h30
8h00 - 12h00 *(Jan. 24)*

GIS for spatial risk mapping Training

In parallel of the medical entomology training, a one-and-a-half day training on GIS for spatial risk mapping and early warning will be organised. This training is a first step in a longer process that will not only include the Dakar face-to-face workshop followed by a distance learning course of six to eight weeks, but, more importantly will be the start of a continued GIS support to ensure that MediLabSecure representatives can use GIS as part of their professional activities related to disease surveillance and early warning.



SPEAKERS

Isabelle DAOUST-MALEVAL

Programme Manager
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Brussels, Belgium

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Isabelle Daoust-Maleval, PhD in biochemistry, of the university Pierre et Marie Curie Paris VI, has managed research teams of expertise's centres and carried out teachings and training courses series at university level. She was scientific advisor on biological and chemical issues at the General Secretariat for National Defense (Prime minister office). Then, she was head of Counter-proliferation and disarmament office at the Directorate General for International Relations and Strategy. Currently she is Seconded national Expert to the European Commission in DEVCO/B5, in the Unit of Eddie Maier, devoted to the European CBRN Centres of Excellence.
Specialized in security, defense and risks management, she has been involved in numerous international negotiations as well as member of numerous expert's panels (AFNOR, UNSG, NATO, European Union, WHO, OECD,...), including team leader of European Union projects within the Instrument for Stability. She is appointed *chevalier de la Légion d'Honneur et de l'Ordre National du Mérite.*

Lecture : *Presentation of the EU CBRN Centres of Excellence Initiative*

Jan. 20
11h00 - 11h30

Diawo DIALLO

PhD
Medical Entomology Unit
Institut Pasteur in Dakar
Dakar, Senegal

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Dr Diawo Diallo has more than 15 years of research experience working on malaria and several arboviruses including Rift Valley fever, West Nile, dengue, yellow fever, chikungunya and Zika ecology and epidemiology. For Rift Valley fever virus, he investigated the roles played by several mosquito species in these diseases' maintenance and mechanisms of emergence, theirs spatio-temporal dynamics, and tested vector control strategies. Dr Diawo Diallo also investigated several arboviruses outbreaks that occurred in Senegal, Mauritania, Cabo Verde, Guinea Bissau and Niger from 2003 to 2016.
He has also worked as an international expert for the World Health Organization, the West African Health Organization and the Global Outbreak Alert and Response Network in the investigation of outbreaks or risk assessment for several arboviruses.
Dr Diallo acquired solid knowledge, skills and experience in mosquito sampling, taxonomy and arboviruses ecology. He has a strong professional background in risk assessments and outbreaks investigations. He has been deployed several times and worked in multidisciplinary and multicultural teams.

Lecture : *Rift valley fever vectors: The sahelian scenario*

Jan. 21
8h50 - 9h10

Cindy DIAS VILELA

Intellectual property lawyer
Legal Department
Institut Pasteur
Paris, France

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Cindy Dias Vilela is an Intellectual Property Legal Counsel and Nagoya Protocol specialist. She is a Jurist linguist with dual skills in Biotechnology, who always had an attraction for science, the environment and public health.

Lecture : *The implementation of the Nagoya Protocol within surveillance activity*

Jan. 22
8h30 - 11h00

Adamou LAGARE

Head of Vriology Laboratory
Bacteriology and Virology Unit
Centre de Recherche Médicale et Sanitaire (CERMES)
Niamey, Niger

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Adamou Lagaré is a PhD student in Microbiology, option virology at the Abdou Moumouni University of Niamey. He is in charge of the virology laboratory at CERMES which hosts two National Reference Laboratories (NRL): the NRL for influenza and other respiratory viruses; the NRL for viral haemorrhagic fever and emerging zoonoses. His work on the surveillance of influenza and other respiratory viruses in Niger has led to an understanding of the epidemiology of influenza and other respiratory viruses in Niger since 2009. Recently with the Rift Valley Fever epidemic he has set up the NRL Viral Haemorrhagic Fever and Emerging Zoonoses.

Lecture : *Rift valley fever outbreak in Niger : a real One Health challenge*

Jan. 21
9h10 - 9h30

Concha MARTIN DE PANDO

Coordinator and Liaison Officer MediPIET Consortium
National Center for Epidemiology
Madrid, Spain

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Concha Martin de Pando is an Epidemiologist with a background in Psychology (UAM) and a Master Degree in Gender and International Development (ICEI-UCM. She is a fellow of Cohort 16 of the Spanish Field Epidemiology Training Programme (PEAC) at Institute of Health Carlos III (ISCIII).
She has more than twenty years working with displaced population and refugees in armed conflict contexts, with indigenous women and children in low income countries. She worked mainly in Training in the fields of Health, Mental Health, Gender and Human Rights.
She has been working in PH and Epidemiology in the Mediterranean region since 2007 based in the ISCIII.
She started her involvement in MediPIET since 2013, during the preparatory phase. As MediPIET Liaison Officer she has been in charge to liaise with ECDC. She has also coordinated twelve Training of Trainers courses on different topics: CBRN Threats, Epidemic Intelligence, Risk Management and Risk communication among others, addressed to the senior epidemiologists working at the involved institutions.

Lecture : MediPIET todat

Jan. 20
11h00 - 11h30

Amadou Alpha SALL

General Administrator
Institut Pasteur in Dakar
Dakar, Senegal

Amadou.SALL@pasteur.sn

Amadou Alpha Sall is a virologist and has a PhD in Public health. He received his scientific education at Universities Paul Sabatier at Toulouse, Paris Orsay and Pierre et Marie Curie in France. He has also visited several laboratories for his training including Institut Pasteur in Paris (France), Institute of Virology and environmental medicine in Oxford (United Kingdom), Center for tropical disease at the University of Texas Medical Branch at Galveston (USA) or Albert Einstein College of Medicine of Yeshiva University at New York.
He is currently the head of the Arboviruses and viral hemorrhagic fever unit, director of the WHO collaborating center and scientific Director of Institut Pasteur de Dakar which belongs to the Institut Pasteur International Network. His research focused primarily on ecology and evolution of arboviruses and viral hemorrhagic fever and diagnostics of the latter viruses is a priority in his laboratory. Dr Sall has worked for 2 years in Cambodia (2002-2004) on hepatitis B and C viruses. He was a Visiting Research Scientist at the Center for Infection and immunity at the Mailman School of Public health at Columbia University of New york and worked for a year on pathogen discovery. He has published more than 100 papers and book chapters and gave more than 100 scientific communications in international meeting.
He is consultant and member of expert committees for WHO (GOARN, TDR...), OIE and member of GOARN steering committee. Dr Sall is the director and founder of the international course on "arboviruses and viral hemorrhagic fever diagnosis, prevention, control and outbreak management" organized by Institut Pasteur Dakar in partnership AMP, Ministry of health of Senegal and University Cheikh Anta Diop Dakar. He has taught at the University Cheikh Anta Diop Dakar, University of Columbia at New York and Institut Pasteur in Paris. Dr Sall has been recipient of the Senegal presidential award for Science in 2011 and is a member of the Senegal National Academy of Science and Technology.

Lecture : *Presentation of Institut Pasteur de Dakar & its emergency field response equipment*

Jan. 20
9h30 - 10h00

Abdourahmane SOW

PO Region Wide - Laboratory services
West African Health Organization (WAHO)
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Abdourahmane Sow is a Senior Medical Epidemiologist and Technical Laboratory advisor in charge of Epidemic control and Public Health Laboratory at West African Health Organization (WAHO). He has more than 15 years' experience both at national and international levels in Management of public health programs and emergency situations, emerging and reemerging diseases surveillance and control, laboratory diagnostic of epidemic prone diseases and infectious diseases modeling.
He has established and supervised the multidisciplinary and integrated surveillance program on arboviruses and hemorrhagic fevers at the WHO Collaborating Center on Arboviruses and hemorrhagic fever viruses.
At regional level, he has established the West African Reference Laboratory Network, the ECOWAS Reference Laboratory data sharing platform and the West African laboratory accreditation program according to ISO 15189 using SLIPTA approach. He coordinated multidisciplinary investigation and response teams for arboviruses and hemorrhagic fevers Outbreaks in Senegal from 2010 to 2016. He has also been deployed as WHO Team Leader of multidisciplinary investigation experts for Emerging and Reemerging diseases Outbreaks Response and Control in many African countries since 2010.

Lecture : *Rift Valley Fever outbreaks in West Africa : Challenges and perspectives*

Jan. 21
8h30 - 8h50

Cheikh TALLA

Biostatistician
Epidemiology Unit
Institut Pasteur de Dakar
Dakar, Senegal

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Biostatistician, at Institut Pasteur de Dakar (IPD), Dr Cheikh Talla was initially trained in Senegal (Gaston Berger University and IPD) where he completed his Master II and PhD degrees. He is interested in statistical methods and modelling, Mixed linear modeling, hierarchical based statistical model, Bayesian methods and diagnostic tests.
Among the many tasks related to his current position at the Epidemiology Unit of IPD, Dr Talla is in charge of managing and setting-up an early warning system platform for the real time detection of any abnormal Influenza like illness event, diseases such as dengue, arboviruses and diarrhea from the syndromic sentinel sites using epidemic threshold and times series. He was previously in the medical entomology unit (IPD) where he worked on the spatial modeling of the vectors of Rift Valley fever.

Lecture : *Spatial modeling of Rift Valley fever vectors in Senegal*

Jan. 21
9h30 - 9h50

Traoré TIEBLE

World Health Organization (WHO)
Senegal Office
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Tieble Traore was trained initially in veterinary medicine and sciences, immunology, epidemiology and control of infectious diseases, and worked as the Stop Transmission of Polio (STOP) consultant, through the Centers for Disease Control and Prevention (CDC) and in collaboration with the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). In 2011, he was deployed in Central Africa Republic (CAR) to support polio eradication efforts and strengthening immunization systems and vaccine preventable disease surveillance programs. After his deployment as a consultant to support the Immunization, Vaccines and Development (IVD) Program at the WHO Regional Office in Brazzaville, he joined the staff at WHO/AFRO Inter Country Support Team (IST) based in Libreville, Republic of Gabon. Shortly at the end of the project SURVAC, in October 2014, he was deployed in Guinea by WHO for Ebola Outbreak response. He worked in Conakry, Guéckédougou and Macenta to support the data management and epidemiological surveillance including cases and contacts tracing.
In late 2015, he re-joined the staff at the WHO/AFRO to support the New Vaccines Surveillance and Ebola Vaccine Implementation in Ebola virus disease (EVD) affected countries in West Africa.
Since 2017, he has worked to improve the collaboration between human, animal and environmental health sectors to tackle zoonotic diseases and or other public health events at the human-animal-environment interface.

Lecture : Strenghtening public health laboratories in the WHO African Region : A critical need for disease control

Jan. 20
11h30 - 11h45

Barry YAHYA

Head of the Animal Health and Food Hygiene Department
Office National de Recherches et de Développement de l'Elevage (ONARDEL)
Nouakchott, Senegal

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Docteur of Veterinary Medicine, Barry Yahya has a Master's degree in Tropical Animal Health from the ITM in Antwerp (2006-2007); he is doing a thesis in medical entomology at the Cheikh Anta Diop University in Dakar. Dr Yahya worked in industry from 1998 to 2004 as Quality Assurance Manager of the frozen and fresh product factories; Since November 2004 he integrated the research field where he has progressed in the Parasitology department until today

Lecture : *RVF, epidemics, surveillance and perspectives*

Jan. 21
9h50 - 10h10

Babacar Ngor YOUM

Senegalese Nagoya Protocol Focal Point
Environmental veterinarian
Dakar, Senegal

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Dr Babacar Ngor Youm graduated in 2002 as a Doctor of Veterinary Medicine.
In 2004, he was selected to join the body of national park conservators.
In June 2006, Dr Youm was appointed Conservator (in charge) of the Réserve Spéciale de Faune de Gueumbeul (RSFG) located in the north of Senegal in the Saint Louis region.
After a brief period at the central management as Technical Advisor to the Director of National Parks in 2010, Dr Youm followed a complementary Master in Management of Animal and Plant Resources in Tropical Environments (Mc GRAVMT) / wildlife management option at the Tropical Veterinary Institute of the University of Liege.
From 2013 to 2017, he was Head of the Division in charge of Community Nature Reserves and Peripheries of Protected Areas in Senegal and was appointed in 2018 Deputy Director of National Parks.
As a veterinarian working in the field of wildlife conservation and management, he has been the wildlife focal point of the World Organisation for Animal Health (OIE) since 2015.
Since 2019, he also assumes the role of National Focal Point for the Nagoya Protocol.

Lecture : *The implementation of the Nagoya Protocol within surveillance activity*

Jan. 22
8h30 - 11h00

POSTERS SESSION

Day 2
Tuesday, January 21st
4:30 pm


#1

1 What about local integrated vector management program and mosquito surveillance/control in Tunisia?

Bouattour Ali, Khrouf Fatma, Ben Ayed Wiem, Rhim Adel, M'ghirbi Youmna *ali.bouattour@pasteur.tn*

Laboratory of Medical Entomology, Institute Pasteur of Tunis, University of Tunis El Manar, Tunis, Tunisia

Abstract:
Vector-borne diseases are reported in over 100 countries and put up to 60% of the world's population at risk of infection. Environmental changes, international travel and transport play an important role in the rapid spread of the vectors and vector-borne diseases worldwide. Tunisia experienced major outbreaks of vector-borne diseases -- including malaria and Leishmaniasis -- in the early 20th century. A changing climate, especially in arid regions, and the global development of trade using rapid conveyances as well as the expansion of port cities for the past two decades have led to the global spread of vector and vector-borne diseases in several regions. In this decade, 3 outbreaks of WNV were recorded in Tunisia.
These new challenges make effective vector surveillance and control necessary. In Tunisia the local integrated vector management program includes mosquito surveillance and control. Thus, for now in Tunisia the medical entomology laboratory team of Institute Pasteur of Tunis implement a program to (i) monitor the introduction of Aedes albopictus, (ii) update the list of mosquito species, (iii) map the distribution of mosquitoes, (iv) determine risk zones for Aedes albopictus and (v) build capacities in medical entomology at national level.
For that, systematic prospections were conducted in all regions of the country of all breeding sites (stagnant water) for larvae collection, using the Deeping method. In addition, traps are used for adults (CDC, BG -sentinel) and ovitraps for Aedes albopictus eggs srveillance. The distribution of identified mosquitos' species is determined using Qgis and Google map.
Up to know, our entomological survey has allowed finding most of previously described species of Culicidae in Tunisia. The reduction of rainfalls and the over use of water for irrigation have an impact on the availability of breeding sites and thus, affect the presence of some Culicidae species. Water contamination (urbanization) has facilitated Culex pipiens proliferation which has become a real pest and also a threat for public health as it is able to transmit various pathogens including West Nile virus. Interestingly, Aedes albopictus was found northern Tunis in october 2018.

Key words: Mosquitoes, *Aedes albopictus*, surveillance, control, Tunisia

Update of West Nile virus strains circulating in Tunisia and Algeria: One Health perspective

2

Fares Wasfi[1], M'ghirbi Youmna[3], Hachid Aissam[2], Gdoura Mariam[1], Touzi Henda[1], Benbetka Chahrazed[2], Fayez Khardine[2], Benallal Kamel[4], Benbetka Sihem[4], Harrat Zoubir[4], Bouattour Ali[3], Triki Henda[1].

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[2] Laboratory of Arbovirus, Institut Pasteur of Algeria, Algiers, Algeria

[3] Laboratory of Medical Entomology, Institute Pasteur of Tunis, University of Tunis El Manar, Tunis, Tunisia

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Abstract:
West Nile virus (WNV) is a mosquito-borne flavivirus mainly transmitted by Culex mosquitoes in sylvatic cycles involving birds as amplifying host and bird-feeding mosquitoes as vectors. Humans and equines are considered as incidental dead-end hosts. Nowadays, WNV is recognized as one of the most widespread arbovirus worldwide with a major public health concern. In Mediterranean basin countries, WNV causes neuroinvasives outbreaks notified especially in summer and autumn. Serological studies on humans, equines and birds as well as virus detection in the vector suggest a fairly frequent circulation in the southern region of the Mediterranean basin including Tunisia and Algeria. Few WNV strains from Algeria and Tunisia were previously typed and belonged to sub-lineage WNV-1a; however, epidemiological data regarding WNV circulation in North Africa is still limited.
This work was conducted in the frame of the One Health Concept in neighboring countries involved in MediLabSecure Network to deepen the knowledge on the epidemiological circulation of WNV strains, during human neuroinvasives infections outbreak. Thus, a molecular investigation was performed on WN human cases and collected mosquitoes in Tunisia and Algeria surrounding clinical cases. In addition, serological investigation was conducted on horses in Tunisia. Phylogenetic analysis based on a partial C-prM structural region of the WNV genome were conducted in order to characterize the WNV strains circulating in human and mosquito's population. Our results favor continuous circulation of WNV in Tunisia and Algeria from 2017 to 2019. Moreover, Tunisian and Algerian WNV strains share common phylogenetic relationship and slightly differ from previously identified WNV strains in the two studied countries. Newly obtained sequences belonged to the Mediterranean subtype within the sublineage 1a as previously described; even so, new clusters were identified.

Key words: WNV, Host, mosquitoes, Tunisia, Algeria

3 Participation of the population in reporting the presence, and collecting data of *Aedes albopictus* for monitoring its geographical extension in Algeria

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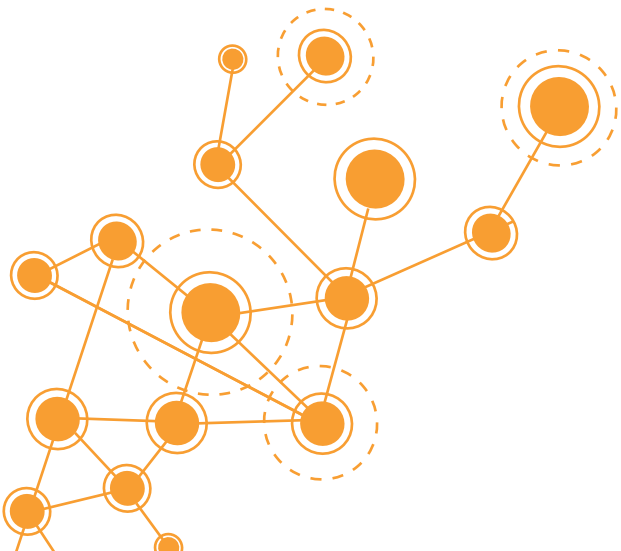
Abstract:
Since its first mention in 2010, Aedes albopictus, or Asian tiger mosquito - an invasive and aggressive species for humans - has spread over a large part of the Algerian coast wilayas (departments) of the from west to east (Oran, Algiers, Tipaza, Jijel, Skikda, Annaba ..).
In order to collect data relating to the observation points of this mosquito, and to involve citizens in the surveillance and sensitization against the tiger mosquito, Institut Pasteur of Algeria has used social networks (Facebook) as a platform for the reporting of Aedes albopictus presence and lesions induced by its bites.
Entomological surveys (nest traps, BG Sentinel traps) are conducted to confirm its presence and advice is given to citizens to limit its density.
A database of tiger mosquito observations was built and used to map its presence and predict potential niches allowing its establishment in Algeria.
This participatory approach based on the concept of crowdsourcing allowed us to predict 152 districts of presence of this mosquito in several wilayas and to organize in a targeted way spraying campaigns in the affected areas.

Key words: *Aedes albopictus*, crowdsourcing, mapping, vector control



Risk factors of Rift Valley Fever, Tchintabaraden, Niger, August-October 2016

4

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Abstract:

Background: From 2 August to 28 October 2016, the health district of Tchintabaraden, notified 146 confirmed cases with 30 death. Six blood sampling of animals and 15 for humans were positive for the Rift Valley Fever (RVF) virus. We investigated the outbreak to identify risk factors and recommended control measures.

Methods: We conducted 1:2 unmatched case control study in October 2016. We defined case of RVF as a person living in Tchintabaraden since august 2th 2016 with a fever ≥ 38.5°C, back pain, muscular pain, headache, sensitivity to light, nausea / vomiting, diarrhea, bleeding of skin, mucous membranes or nose, gastrointestinal, unusual vaginal bleeding and Jaundice with PCR test positive. We defined controls as any person living in Tchintabaraden without any suspected signs and symptoms of RVF at the time of recruitment. We collected data using a questionnaire. We conducted active case search in the community and health center. We calculated odds ratio (OR) and used 95 % confidence interval. We identified risk factors in multivariate analysis.

Result: We included 252 persons, 84 suspected cases and 168 controls. Case median age was 17 years range 5-74 years. Female were most represented 54,76% and Housewives and herders are about 40% less likely than other occupational groups to have RVF. Compared to control, being a case was associated with Age group 1-24 years (OR=6,27, CI:3,53-11,4, p=0.0000), Consumption of milk of sick animal (OR=2,74 CI:1,48-5,07, p=0.001), consumption of milk cheese of sick animal (OR=2,81, CI: 1,41-5,37, p=0.002), consumption of diseased animal meat (OR=2,85 CI: 1,23-6,60, p=0.020) and contact with diseased animals (OR=2,32 CI:1,35-3,97, p=0.002).

Conclusion: The risk factors of RVF were the consumption of raw milk cheese from diseased animals, contact with a diseased animal and the consumption of diseased animal meat. We recommended to avoid contact and consumption of sick animal.

Key words: Rift Valley Fever virus, risk factors, Niger

5 Does Rift Valley Fever virus and Crimean-Congo hemorrhagic fever virus circulate in Tunisia?

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Abstract:
Rift valley fever virus (RVFV, Phenuiviridae) and Crimean-Congo hemorrhagic fever virus (CCHFV, Nairoviridae) are vector-borne-Bunyavirales that cause life-threatening disease to humans. Although the hard ticks (Ixodidae) serve as reservoirs and vectors of CCHFV, a variety of animals, such as ruminants are considering amplifying hosts for the virus. In the contrary, animals mainly ruminants are most frequently infected with RVFV causing heavy economic losses. Reports documenting serological evidence of RVFV and CCHFV among high-risk human populations in Tunisia have been published. However, no recent data exist about the prevalence of these bunyaviruses in animals in Tunisia, although it is already established that prevalence studies in animals serve as good risk indicators for human populations. This study aimed to discover whether CCHFV and RVFV are circulating in regions beyond their known geographic range.

A cross-sectional serological and molecular survey was conducted at different governorates in Tunisia between November and January (2005-2014). Serum samples from ruminants (sheep, goats, and cattle) were analyzed for RVFV and CCHFV specific antibodies using two competition multispecies ELISAs (cELISA, ID Vet). The overall seroprevalence for RVFV and CCHFV was 2.7 %, and 10.9 % respectively. In addition, mosquitoes captured in 2018-2019 were tested for RVFV by qRT-PCR, however no RVFV RNA was detected.

The present project is the first serological evidence of the circulation of these arboviruses in ruminants in Tunisia. Further investigations are needed to identify the circulating RVFV and CCHFV strains in their vectors (mosquitoes and ticks), in order to gain a better understanding of the ecology and epidemiology of these arboviruses in Tunisia.

Key words: Crimean-Congo hemorrhagic fever virus, Rift Valley Fever virus, ruminants, Tunisia, mosquitoes

Crimean Congo hemorrhagic virus in Northeastern Senegal: case report

6

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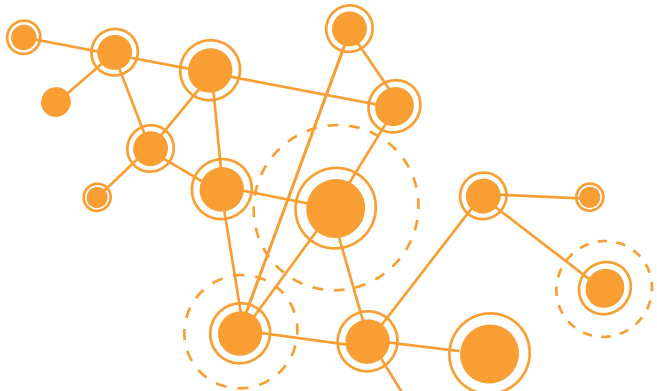
Abstract:

Crimean Congo hemorrhagic fever (CCHF) is an acute, viral, zoonotic disease circulating in Africa, Asia and Europe where the primary vectors Hyalomma ticks are widespreading.

It is transmitted by the bite of infected ticks, direct contact with blood or infected tissues from viremic animals and human-to-human transmission was reported through virus-containing-body-fluids, mainly in a nosocomial context. The host of the CCHF virus include a wide range of wild and domestic animals such as cattle, sheep and goats. CCHF shows a spectrum of severity ranging from mild non-specific febrile syndrome to vascular leakage, multi-organ failure, shock and haemorrhagic. The average case fatality rate is 30-40%, but mortality varies from 10% to 80% in various outbreaks. We reported a human CCHF cases in the Matam region of northeastern Senegal in September 2019. Patient with suspected arbovirus infection was received at the Bokidiawe primary health care centre then a blood sample was collected and sent to the Institut Pasteur of Dakar (IPD) on September 06, 2019 as part of ongoing Syndromic Sentinel Surveillance network in Senegal (4S network). Diagnosis of CCHF was confirmed by reverse transcription-PCR (CCHF virus isolation) and Serology (specific class M antibodies) for the index case: a 47-year-old female living in Douga village. One family members and contacts of the index case, a 65 year-old man with suspected arboviruses symptoms also exhibited elevated specific class M antibodies. Similarly, three of five of their sheep tested showed an immunoglobulin (Ig) G. All cases are cattle breeders and farmers. These observations demonstrate that CCHF virus circulates in northeastern Senegal. CCHF should be investigated in the patients with fever or dengue like syndrome. Early clinical diagnosis and laboratory confirmation of cases is essential for initiation of treatment and the implementation of public health measures. Contact with the blood or tissues of infected humans or animals should be avoided.

Key words: Crimean-Congo, haemorrhagic fever, 4S network, tick, Senegal



7 Identification of the circulation of the first cases of circulation of Peste des petits Ruminants (PPR) and Rift Valley Fever (RVF) virus in Kouré giraffes in Niger

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Abstract:
PPR and RVF are two known diseases in domestic ruminants. The former is the subject of annual vaccination campaigns and the latter had an outbreak in 2016 in Niger in both animals and humans.
The objective of this study is to investigate the circulation of these two diseases in a wild ruminant, Giraffa camelopardalis peralta. Indeed, conservation efforts have seen the giraffe population increase from 56 individuals in 1996 to 607 in 2017 with an average annual growth rate of 10%. Also, to reduce the pressure of this species on its current habitat, a translocation operation was conducted in November 2018 where ten (10) individuals were transferred to the Gadebédji Biosphere Reserve. Samples of serum, blood, hair and ticks were taken from the giraffes captured after anaesthesia. The sera obtained were analyzed at LABOCEL by the c-ELISA technique to detect antibodies against PPR and RVF. The results obtained show that 1/10 have antibodies for PPR and RVF respectively. In view of the preliminary results of this investigation, it is necessary to undertake a surveillance of these two diseases in giraffes, which really constitute a potential reservoir particularly of the PPR virus and the RVF, which remains a major zoonosis for Niger.

Key words: Giraffe, PPR, RVF, c-ELISA

Genome characterization of Bluetongue virus strains circulating in Tunisia in the last 5 years

8

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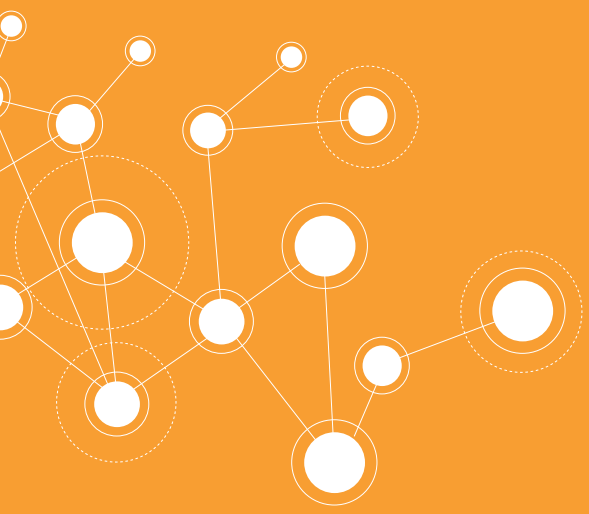
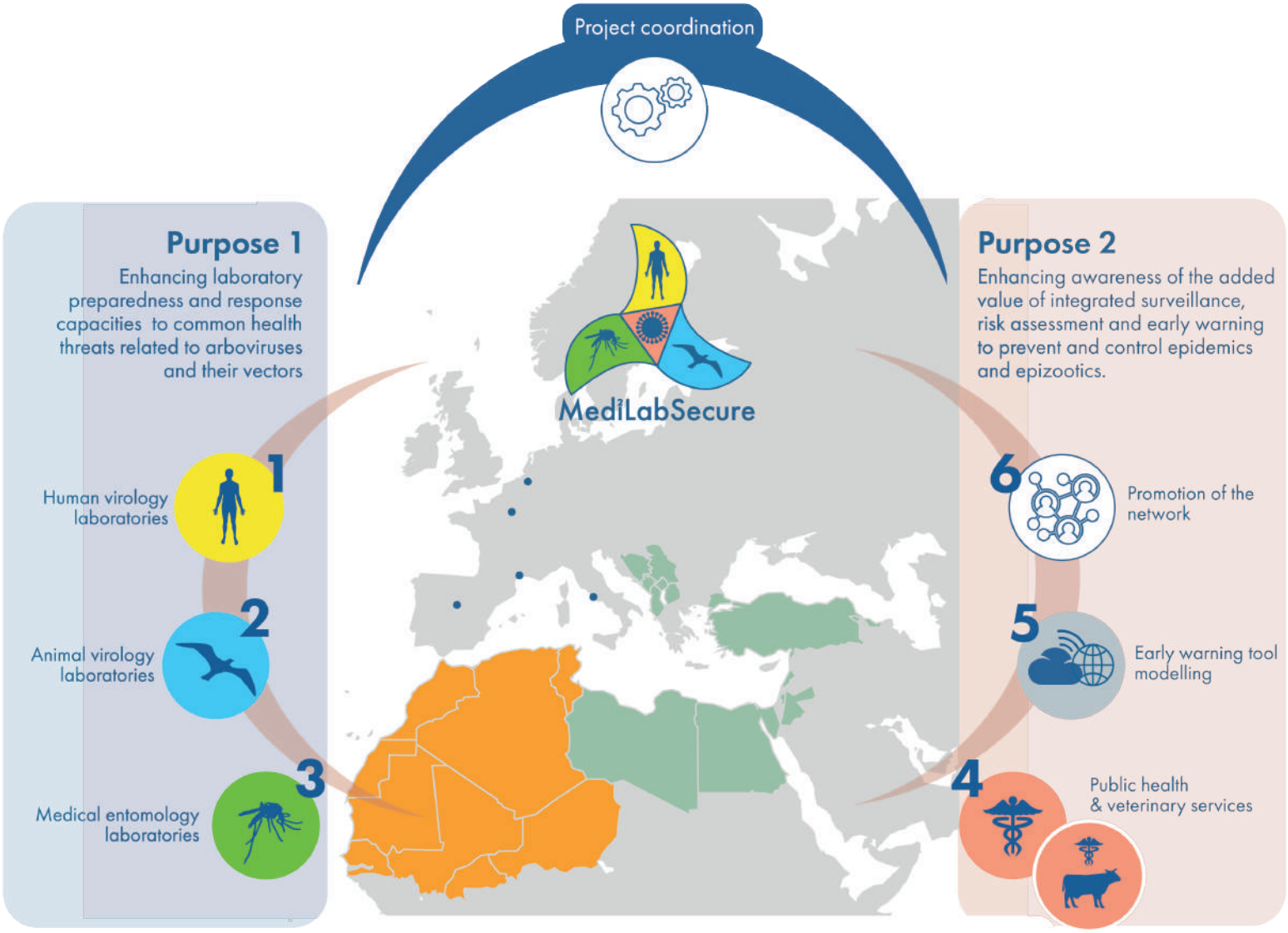
Abstract:
Bluetongue (BT) is an OIE-listed disease of ruminants caused by a virus (BTV) of the Orbivirus genus within the family Reoviridae and transmitted by biting midges of the genus Culicoides. BT is a considerable socioeconomic concern and of major importance for international trade of animals. Detected in 1999 in Tunisia, BVT2 was later reported in the Balearic Islands, Sicily, Sardinia and Corsica. Later, several BTV serotypes, likely originating from sub-Saharan Africa, circulated in North Africa before being reported in Europe. This emergence of BTV in Europe from North Africa was linked to the wind-borne transportation of infected midges. Fruitful cooperation initiated since 1999 with France and later with Italy led to an OIE twinning programme for the diagnosis of BT between Tunisia and Italy in 2010. Since then, joint BTV surveillance programmes have been implemented. Within this collaboration, a specific and accurate qRT-PCR for the detection of BTV serotype 3 was established. This assay was used to detect viral circulation in Tunisia in 2016, in Sicily in 2017 and in Sardinia in 2018. Importantly, two variants of BTV-3 have been characterized in Tunisia. The joint surveillance programme also allowed the detection of two additional strains of BTV-2 and BTV-4 in Tunisia in 2018 and 2019, respectively. Genome constellation of BTV-2 was obtained by next generation sequencing. Phylogeny revealed that this BTV-2 strain is a reassortant virus between "old" western BTV-2 African strains (Seg-2, 6 and 7), one of the two BTV-3 variants (Seg-3, 4, 5, 8, 9 and 10) and the Balkanic BTV-4 (Seg-1) . Genome analysis of BTV identified in 2019 is currently underway. The whole genome sequencing has become essential to identify reassortant strains and their putative origin. Overall, is of critical importance that European and Northern African authorities collaborate in organizing coordinated surveillance programmes and common research projects to detect early novel strains or emerging serotypes and to set up proper preventive measures, including the development of specific vaccines and coordinated vaccination campaigns.

Key words: Bluetongue, Surveillance, Mediterranean region, Whole genome sequencing



THE MEDILABSECURE NETWORK



8 meeting participating countries

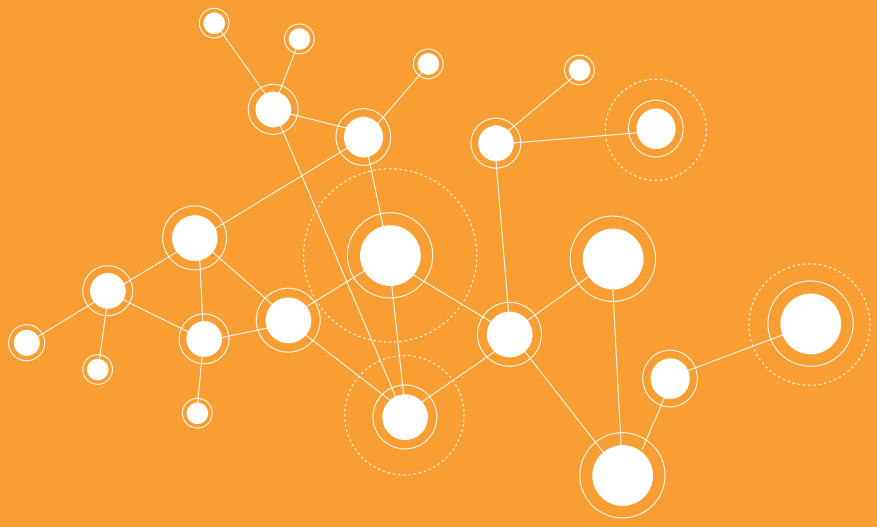
- Algeria
- Burkina Faso
- Mali
- Mauritania
- Morocco
- Niger
- Tunisia
- Senegal

Other network members

- Albania
- Armenia
- Bosnia and Herzegovina
- Egypt
- Georgia
- Jordan
- Kosovo*
- Lebanon
- Libya
- Montenegro
- Palestine**
- Rep. of North Macedonia
- Serbia
- Turkey

** This designation is without prejudice to positions on status and is in line with UNSCR 1244 and ICI Advisory opinion on the Kosovo declaration of independance*

*** This designation shall not be construed as recognition of a State of Palestine and is without prejudice to the individual positions of EU Member States on the issue*



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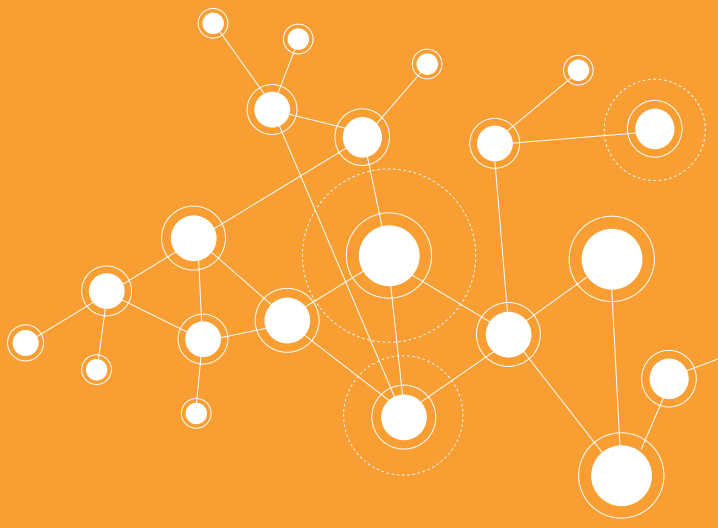

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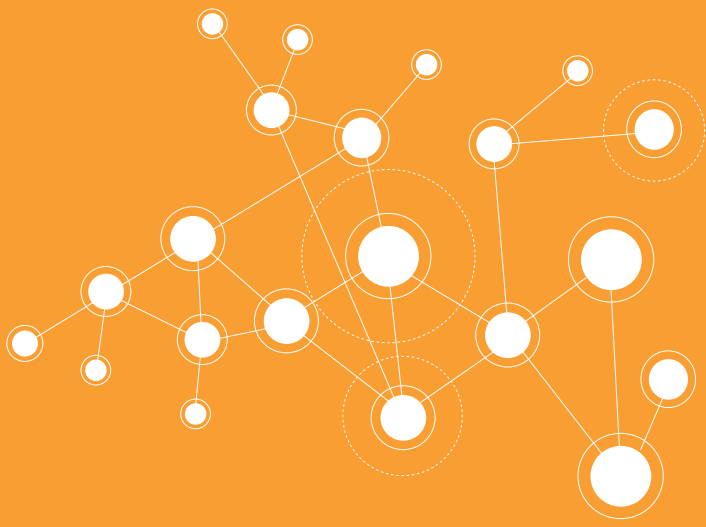

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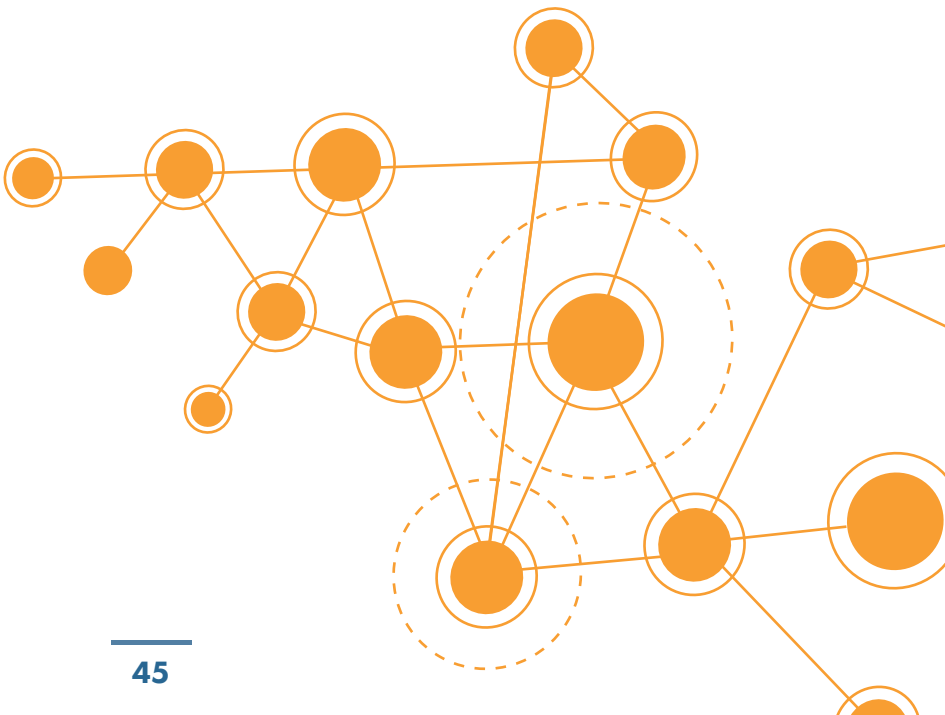

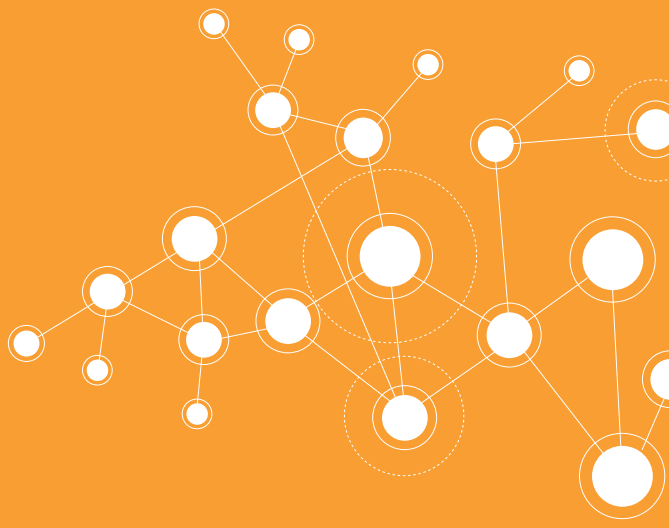

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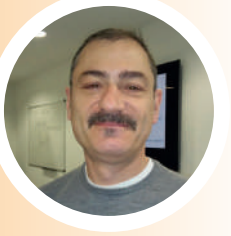

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Key expert human virology

Guillain Mikaty
Microbiologist & project Manager

Guy Hendrickx
Key expert risk mapping/ modelling

Cédric Marsboom
Training Facilitator

Miguel Angel Jimenez Clavero
Key expert animal virology

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Maria Grazia Dente
Key expert public health

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Key expert public health

Vincent Robert
Key expert medical entomology

Marie Picard
Project Manager

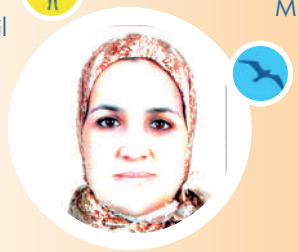
Laura Amato
Veterinarian PhD student

Paolo Calistri
key expert veterinary services

Morocco

Jalal Nourlil

M'hammed Sarih

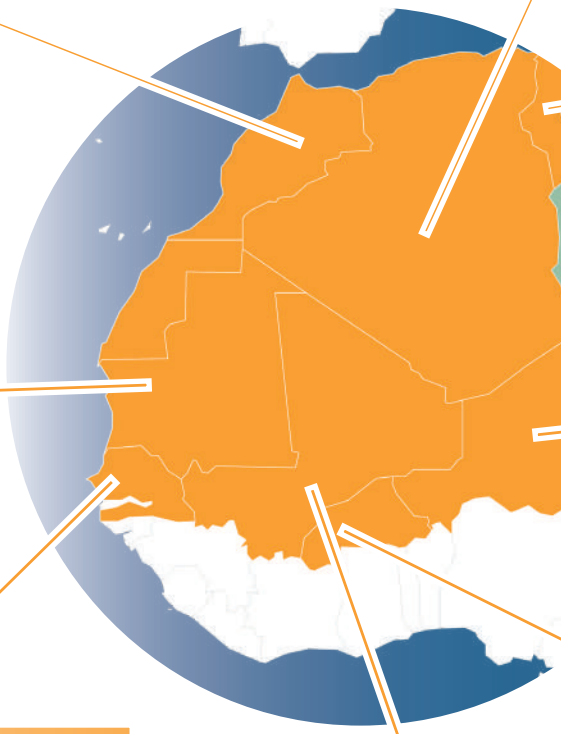


Hanane Khallouki

Ilham Ahamjik

Algeria

Aissam Hachid



Mohamed Abdellahi Bollahi

Yahya Barry

Ali El Boukhary

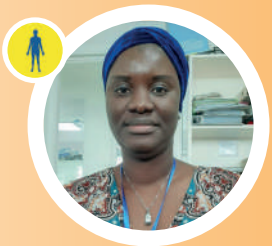
Mauritania

Modou Moustapha Lo

Diawo Diallo

Ousmane Faye

Boly Diop



Ndeye Sakha Bob

El Hadji Ndiaye

Gamou Fall

Senegal

Ibrehima Guindo

Mali

Isma Dalila Djaileb

Zoubir Harrat

Zakia Djitli

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Soufien Sghaier

Wasfi Fares

Niger

Issifou Djibo

Adamou Lagaré

Abdou Allassane

Kaouther Harabech

Youmna Mghirbi

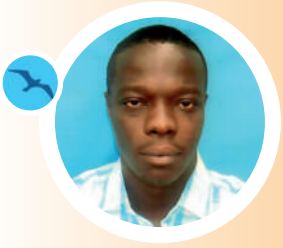
Ali Bouattour

Heni Haj Ammar

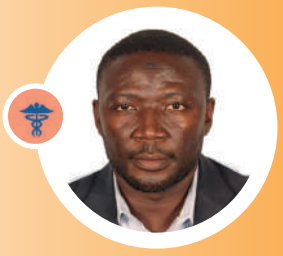
Tunisia

Burkina Faso

Sekou F. Traoré



Boubacar N'Paton Sie



Brice Bicaba

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Network members

Notes

Project coordinated by Institut Pasteur

In collaboration with

INIA
Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria

French National Research Institute for Sustainable Development
IRD
Institut de Recherche pour le Développement
FRANCE

AVIAGIS

ISTITUTO SUPERIORE DI SANITÀ

with the support of

IZSAM G.CAPORALE TERAMO

Event co-organized with

Institut Pasteur de Dakar

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