The Caribbean Animal Health Network

“One Caribbean, One Animal Health”

Thierry Lefrançois
CIRAD UMR CIRAD-INRA CMAEE

“control of exotic and emerging animal diseases”
French focal point REPIVET

www.caribvet.net
Health risk in the Caribbean

Background
- Factors of vulnerability and surveillance networks
- Human emerging diseases mainly of animal origin
- Vector-borne diseases, sensitive to changes

The Caribbean, at risk of emergence
- 32 countries/territories, scattered and diverse
- Human, animals and animal products movements
- Challenging environment
How to manage/mitigate these risks?

- Detecting and responding to emerging diseases is challenging
  - Drivers of emergence & spread result from complex interactions between biological, genetic, ecological, political and social factors

- What to do?
  - Early detection
  - Improved diseases knowledge, surveillance & control

- Opportunities
  - Diagnostic: improved techniques and standard
  - Communication → Information technology
  - Knowledge → Disease modelling
  - “One health” initiative

Regional approach:
- Sharing information
- Effectiveness
- Harmonization/coordination

3- Approche régionale
CaribVET, definition and objectives

- The Caribbean Animal Health Network (CaribVET) is a collaboration network involving:
  - Veterinary services
  - Research institutes
  - Regional/international organizations

- Objectives of CaribVET: improve animal and veterinary public health in all the countries &/or territories of the Caribbean
  - Structure, reinforce and harmonize national surveillance networks;
  - Improve and harmonize the control of animal diseases and implement an early warning system;
  - Reinforce the technical skills and support the development of tools necessary for surveillance and control including diagnosis capacity;
  - Improve the knowledge on animal diseases and their distribution.

→ Regional strategy
Building of CaribVET

1995-2005

- Origin and development of CaribVET
  - Technical regional projects (Caribbean Amblyomma Programme)
  - Sanitary crisis: CSF reintroduction in Hispaniola
  - Trainings and meetings in epidemiology

2006

- Adoption of CaribVET
  - Institutional adoption by 20 CVOs and international organizations
  - Political adoption by CARICOM Council for Trade and Economic Development (COTED)

2010 - 2012

- A well-established network
  - 32 countries and territories members
  - Validation of the Charter
  - Cooperation agreement OIE, FAO
**COORDINATION UNIT**

- **CVOs** of 32 countries/territories + membres of CaribVET
- + chairs WGs
- Activities coordination
- Application of the SC recommendations
- Communication
- Fund raising

**WORKING GROUPS**

- 4 diseases specific WGs
- 2 Transversal WGs
- Provide regional expertise
- Work out harmonized plans
- Improve diagnosis capacity
- Define regional emergency plans

**FUNDING**

- STEERING COMMITTEE
  - 1 meeting/year
  - Recommendations
  - Co-planning of the strategy

**Technical & scientific support**

**No hierarchical link**
CaribVET operation and activities

CaribVET Steering Committee:
countries & organizations
Sustained collaboration

Regional strategy
Structured collaboration

Research & expertise
(technical WG & research institutes):
surveys, disease modeling
Disease knowledge

Diagnostic capabilities
Inter-laboratory assays
Assurance quality
Regional laboratories with research capacities

Improve regional surveillance & control of animal diseases

Sharing of information
Reporting
www.caribvet.net

Data flow
Databases
Syndromic surveillance
Disease specific

Epidemiology working group
Surveillance protocols for priority diseases
Risk assessment

Evaluation of surveillance systems
Surveillance Network Assessment Tool (SNAT)
Provide technical & scientific support for Caribbean members

- **Support on specific diseases**
  - Disease knowledge
  - Surveillance/control of a disease
  - Research performed in the region/country

- **Technical tools**
  - Surveillance guides: methods standardization
  - Epidemiology books, databases,…

- **Laboratory Working Group: toward a Caribbean laboratory network**
  - Lab database on the website
  - Evaluation of the CARICOM laboratories in 2009
  - Recommendations for development of quality assurance
Reinforcement of national surveillance networks.

- **Set of criteria for the identification of priority diseases**
  (countries and region)

- **Evaluation of surveillance activities in the Caribbean, a basis for improvement**
  - SNAT: Surveillance Network Assessment Tool complementary to OIE PVS
  - 2 or 3 trained epidemiologists visiting all surveillance stakeholders of a country
    → identify strengths, weaknesses and key points for intervention

- **Qualitative risk assessment**
  - Tools development
  - Adaptation/validation in different countries & language speaking
  - To enable CVO assessing the risk of introduction of diseases in their countries
Harmonization, improvement and reinforcement of national surveillance systems

Capacity Building: benefits for the national surveillance networks

LAB

GIS, Databases

Surveillance Systems, Emergency response

Vets & technicians

Harmonization, improvement and reinforcement of national surveillance systems

Epidemiology, questionnaire validation, data interpretation,…
Integrated approach research-surveillance
Modelling and surveillance & control strategies

Tick biology
(field and experimental data)
+ climatic data

Mathematical modelling

Suitable area
Seasonal dynamics
Introduction

Surveillance strategies
Control strategies
Integrated approach research-surveillance
Modelling and surveillance & control strategies

CIRAD GUADÉLOUPE laboratoire de référence OIE
diagnostic et recherche sur tiques et maladies transmises

Biology Ehrlichia ruminantium

Tick Biology
↓
Modelling

Surveillance strategies

Control strategies

Working group
Ticks and TBDs

Génomique

Transcriptomique

Protéomique

Vaccines

Origine of reinestation

Updated situation
National objectives

Tick Genomics

Research subjects

Steering committee
CaribVET

National Veterinary services

Expertise & training

Action plan
Recommandations
Collaboration, communication and management of health information

- **Collaboration**
  - Dialogue among partners
    - Annual meetings
    - Strengthen human links (mutual trust)
    - Formalise decision-making
    - Informal exchange

- **Exchange of information and data**
  - Formal documents
    - Charter of CaribVET
    - Minutes of all meetings (WG, trainings...)
    - Protocols of projects
  - Surveillance data
    - VEP project
    - Surveillance valorisation → research
Collaboration, communication and management of health information

The participative website www.caribvet.net

- Communication and information tool
  - Trilingual, forum
  - Information on diseases existing in the region
  - Priority disease: regional activities and bibliography
  - Information on Livestock, surveillance system...
  - Activities of CaribVET (meetings, trainings, projects)

- Diseases control and management tool
  - Laboratory database
  - Surveillance system database
  - Disease database: TickINFO, Dési...

- Role of WG in the moderation of the content

Information bulletin

- Editorial team
- Since June 2010, 2-3 issues/year
- Corner on CaribVET members, WG, VEP, OIE, laboratories, universities...
- Announcements: trainings, conference,...
Lessons of CaribVET & perspectives

- Development of CaribVET
  - Bottom-up process and technical/scientific activities
  - CaribVET is built to be a sustainable Network, not a Project
    - Funded by several sources: FSP, Interreg IV Caraïbe programme, USDA, FAO…
  - Gather veterinary services, research institutes, and international/regional organisations for a co-programmation and cost effective activities

- A great involvement of all members for its sustainability
  - Improved coordination between WGs
  - Autonomy and initiatives of members and WG chairs
  - OIE Letter of Understanding
  - A charter up to a legal statut
  - Research development within the network and international recognition

- To be improved
  - Impact-oriented communication (for country ministers and funders)
  - Formalisation of the network: towards quality assurance for the network (traceability, action plan, databases, performance indicators…)
  - Funding by members
Lesson for CaribVET-Concept for CIRAD
Link between surveillance and research

**Research networks**

**Research activities** (vaccines, diagnostic, models ...)

Local technology platforms & international reference

**Regional surveillance networks & observatories**

Access to field data & biological resources
Identification of new research questions or development issues

**Science-based expertise in support to improved sanitary surveillance, alert & notification, control**

**Research networks**

**Education & Capacity building**

**Institutional networks**

**Disease dynamics** (eco-epidemiologic processes)

Diversity, systematic, phylogeny and evolution
Pathogens and vectors
Ecology of the vectors
Epidemiology, modeling and prediction

Drivers related to animal mobility

Drivers related to environmental changes

Diseases with direct transmission
NCD, AI, PPR, CBPP/CCPP

Vectors and vectorial diseases
heartwater, bluetongue, WNV

**Disease Control**

Microbial genomics, cellular and molecular immunology

Interactions host-pathogen & physiopathology
Diagnostic and Vaccines

Heartwater, AI, PPR, CBPP

**Strategies of control & Impact, Modelling**

Vector control

**Training**

Training through research
Professional education, Academic education

**CIRAD CMAEE Research project**
Regional animal health networks

Regional approaches made global through interactions between networks for the surveillance and control of animal diseases in tropics/sub-tropics/Mediterranean

- **Partnerships** within and with the South (emergence areas)
- **Regional (global) impact** of the delivery of tools & methods
- Strong research <-> surveillance **interactions**
- Access to the field and to **biological resources for better research**
Proposed project to link research and surveillance in the Mediterranean

European project FP7 -KBBE.2013.1.3-01: Emerging viral vector borne diseases
Call: FP7-KBBE-2013-7 – single stage

Context of the call
• Global changes increase emergence of animal and zoonotic diseases especially vector-borne diseases with major economic or public health impact.

Needs
• Better anticipation and prediction of disease emergence and spread
• Better surveillance adapted to new tools available
• Associate veterinary services and research institutes
• Develop a shared strategy between Europe, northern Africa, and the Middle East

Objective of the project
• Integrated multidisciplinary approach to study risks disease emergence and spread,
• Two main categories of arthropods
  • Mosquitoes: RVF, WN and other Flaviviruses, Alphaviruses…
  • Culicoides biting midges: Orbiviruses, Orthobunyaviruses…
• Known to transmit important animal and zoonotic diseases in the Mediterranean
Proposed project to link research and surveillance in the Mediterranean

Activities and expected outputs

Study of virus and microbial communities by NGS methods in vectors to
• role of microbial and environmental ecology in virus emergence and transmission
• new pathogens and innovative diagnostic methods for surveillance

Characterize vector competence mechanisms
mosquitoes / RVFV + Culicoides / Schmallenberg and Orbiviruses

Develop better maps of vector distribution, disease transmission, high-risk areas, emergence and spread

Design new surveillance frameworks accounting for these new diagnostic methods, new knowledge and risk assessments

Improve intervention strategies against vector-borne diseases including new vaccines for RVFV, SBV and other possible new pathogens identified by NGS
Proposed project to link research and surveillance in the Mediterranean

Partners

Northern research partners
- **France**: CIRAD, ANSES (FR)
- **Spain**: CRESA
- **Italy**: ICT (ex IZS Teramo)
+ **UK**: PI (ex IAH), **NL**: CVI, **Germany**: FLI

Southern partners
- **REMESA countries**: Morocco, Tunisia, Mauritania, Egypt…
+ **Senegal** + **Turkey** + Lebanon

SMEs
- **Euro-AEGIS** (BE)
- SME on NGS / bioinformatics

Associated partners
- **FAO**
- **OIE**
- **RVC** (UK)
Conclusions

from

bilateral cooperations & expertise

to

regional collaborations & activities

= Interaction research-surveillance-capacity building through project developments
Caribbean CVOs + members of the WG

Caribbean VET Partners

Caribbean VET Members

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