



# Facing emergence : The experience of a Chikungunya outbreak in La Réunion

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# Epidemics can have different origins :

- Known endemic agent
- Known imported agent
- Unknown or unsuspected endemic agent
- Unknown agent of unknown origin, either natural or modified



# Emergence poses several problems :

- To recognize the agent or the disease as a new one
- To identify the new agent
- To make rapidly available diagnostic tools
- To identify the origin and routes of transmission of the agent
- To prevent and treat infections



# The story of an epidemic (1)

- Before 2004, CHIKV was known only in Africa and South-east Asia
- In late 2004, CHIKV infections are detected in Comoros
- One case is imported and diagnosed in Marseilles, as the result of systematic screening of tropical infectious diseases in military and civilian travellers



# The story of an epidemic (2)

- Due to the alert and specific procedures, several cases can be diagnosed in La Réunion Island, but diagnostic tools are not available locally
- An epidemic begins in 2005 and develops until mid 2006 (250 000 persons became infected)
- Many people come back infected to France and to other northern countries



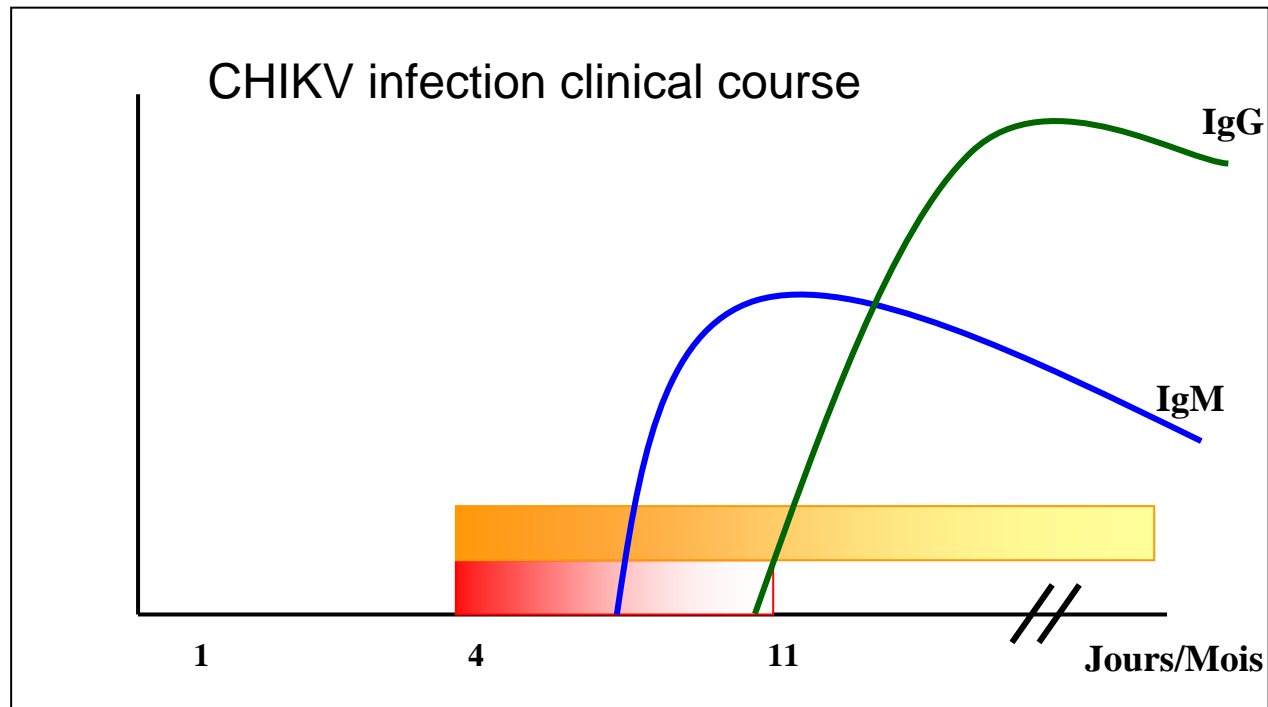
# Contribution of SSA (1)

- SSA vector control teams are sent to La Réunion Island
- An epidemiologist with experience of large tropical and vector-borne outbreaks is sent to help local authorities
- The laboratory of tropical virology in Marseilles acts as a public-health laboratory, providing diagnosis, diagnostic tools and expertise :
  - First, samples for diagnostic are sent to France
  - Rapidly, molecular biology and serology techniques and reagents are transferred to local laboratories



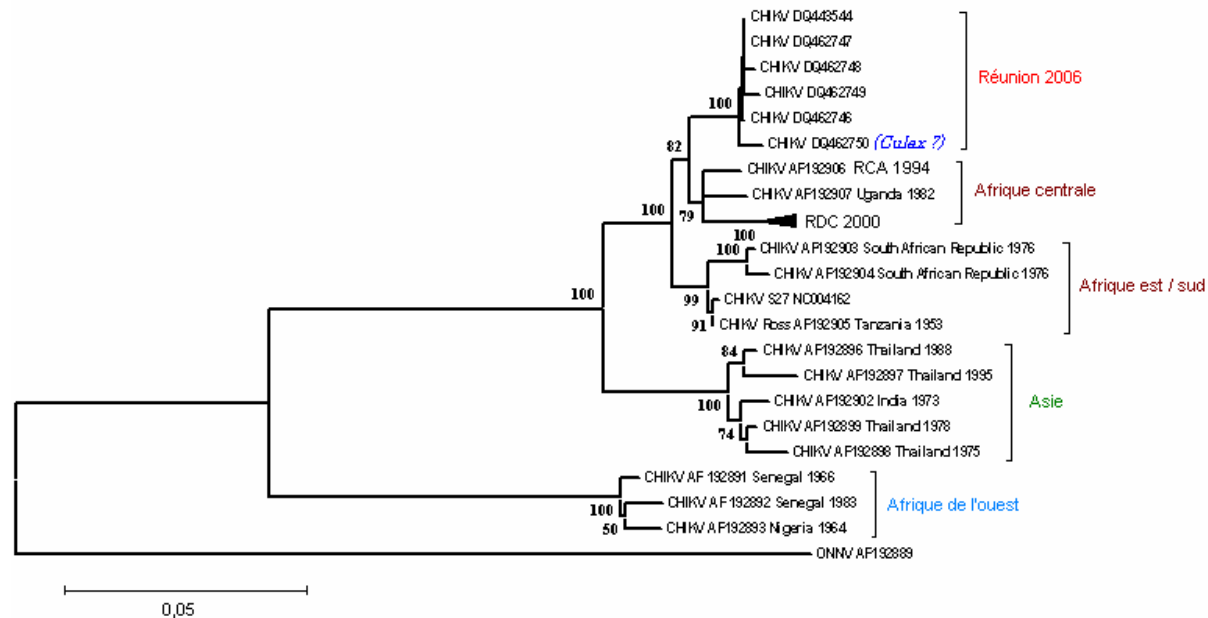
# Contribution of SSA (2)

- Available knowledge on CHIKV infection is shared with physicians and health authorities: duration of incubation, asymptomatic infections rate, routes of transmission



# Contribution of SSA (3)

- While blood and cornea collection are suspended, virological control for organs transplantation is done in Marseilles
- In a second phase, research is carried out looking at the origin of the virus (genome sequencing and phylogeny), its vectors and reservoir





# Contribution of SSA (4)

- As the epidemic develops and travellers come back to France, diagnostic reagents are produced and distributed to all national laboratories
- Investigations are done on late, post-acute, evolution of the disease both in military and civilian patients
- In the post-epidemic period, our laboratory is part of the national plan for surveillance and control of imported CHIKV infections in South France where *Ae. albopictus* is now present :
  - Virological diagnosis of suspected cases
  - Investigations on potential vectors (virus detection)



# The lessons of the outbreak (1)

- Emergence can take on many worrying aspects
- Although CHIKV was not totally unknown, basic knowledge and tools were lacking
- Previous experience we have had with CHIKV in Africa proved very useful and valuable
- Systematic and large investigations done on “sentinel” population (travellers) is an important issue



# The lessons of the outbreak (2)

- Interest must be attached to every agent with potential to affect Humans, everywhere
- Basic epidemiological, biological and clinical knowledges must be acquired and updated
- Diagnostic tools must be developed and made available



Thank you for your attention

