

## RIFT VALLEY FEVER IN SENEGAL: 10 YEARS OF SURVEILLANCE

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### Introduction:

RVF is a viral disease of veterinary and medical importance. Periodic severe epizootics are accompanied by epidemic human disease in Africa (Egypt 1997, 1993, Mauritania 1987, 1993, 1998, Eastern Africa 1997-98) with recent extensions in the Arabian Peninsula (Saudi Arabia and Yemen in 2000). In Senegal, following the first RVF outbreak in 1987 in the Senegal River Delta, a program of surveillance of the disease in domestic ruminants was conducted from 15 years (from 1988 to 2003). The objectives were to establish an early detection of the disease based on sentinel herds sero-monitoring and disease reporting through the country..

### Material and Methods

A network of sentinel herds (small ruminants) located in potential high risk areas for RVF was visited during the raining season (from June to November) with clinical examination and cattle herds randomly selected during the Pan African Rinderpest Campaign were sampled.

Collected samples (sera) were analysed by VN and Elisa for IgM and IgG antibodies in order to reveal recent and past viral circulation.

Virus isolation from organs and tissues was performed on Vero cells and suckling mouse.

### Results

#### Animal RVF antibody prevalence.

The serosurveys conducted in sheep and goats showed the following variations:

- the RVF seroprevalence reached a peak of 70% after 1987 epizootic, dropped to 30% in 1988 and then decreased continuously until 1993. This fall in RVF prevalence in animal population corresponded to period of low rainfall (Thonnon et al, 1999).

- during periods of heavy rainfall, such as 1994, 1999, 2002 and 2003, RVF activity re-emerged as epizootics amongst herds in the Senegal River basin and some adjacent areas such as Ferlo.

In the Ferlo area, an enzootic cycle of RVF virus was shown involving species of mosquitoes like *A vexans* and *A ochraceus* during the raining season (Thiongane et al, 1994).

Throughout the country, many suspicions of clinical RVF were confirmed by laboratory analysis but others transboundary animal diseases were detected.

#### Public information.

Communication and training materials (5 periodic bulletins, 400 booklets, 200 video and 2000 posters) (Figure 4) were produced to raise local awareness of RVF consequences on livestock and human health.

A computerized regional database with more than 20 000 informations (sero-surveillance surveys, suspicions and outbreaks notifications) collected in Senegal and neighbouring countries from 1988 to 2003

### Discussion.

RVF surveillance can be accomplished by a variety of approaches but we choose the serological survey system according to local conditions, specially herd owners agreement, cost and effectiveness. Moreover, specific diagnostic tools with ELISA assay was chosen and permits separation of IgG and IgM, and IgM are a valuable indicator of recent infections. The presence of virus circulation increased the risk of an epizootic, and hence an epidemic, in the rainy seasons in relation to vector activity. The etiological diagnosis must be associated with sustained awareness of RVF in order to prevent major RVF epizootics.

Data obtained from satellite imagery will help to predict and prevent future RVF epizootics and epidemics and must be used in association with animal surveys which are sensitive and inexpensive tools (Davis et al, 1985).

### Conclusion

RVF virus transmission appeared to be endemic in the northern Senegal, mainly in the Senegal river basin, with fluctuations according to rainfall. According to the risk for livestock and human populations, a serosurvey based on small domestic ruminants appeared for us a sensitive tool for the detection of RVF circulation.

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