

100 Years of Rabies in Kenya

2nd Meeting of the Eastern Africa Sub-Regional Network for Rabies Control



Federal Ministry
for Economic Cooperation
and Development



World Organisation
for Animal Health
Founded as OIE

period 1900 - 1912



Image from the Colonel Robert John Stordy,
Chief Veterinary Officer 1910.

- Official Veterinary reports (1909, 1912) show rabies was not diagnosed in Kenya from 1900 - 1912³
- First record of a confirmed rabies case in 1912 In a dog attacked and bitten by a jackal
Location: Nairobi
Confirmation: Negri bodies in its brain and through experimental inoculation

Similar cases followed rapidly in Nairobi and Kiambu

Anon (1909, 1912) Annual Report. Veterinary Department Ministry of Agriculture, Kenya

Spatial spread: period 1912 - 1920



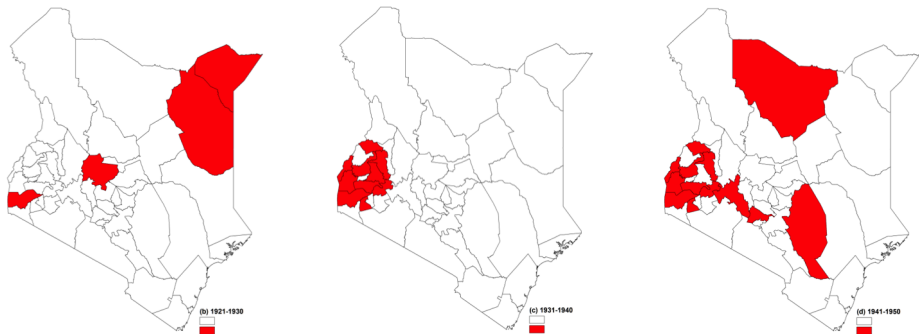
- Outbreak lasted until 1916
- Cases confined to Nairobi and Kiambu areas⁴
 - At Fort Smith, Nairobi (1913-1914) and
 - At Kabete (1916)
- Diagnostics: rabbits inoculated with material from the infected animals
- **No record of human rabies case yet!**

Spatial spread: period 1921 - 1950



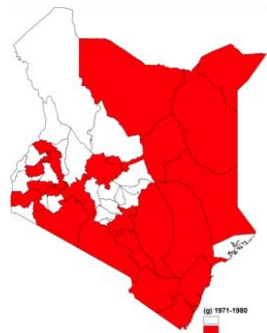
- First human case 1928 - a woman in South Nyanza - died a month after dog bite
- Disease in dogs spreads to Laikipia and Wajir (1928), Wajir and Mandera in Jackals (1929)

Spatial spread: period 1921 - 1950



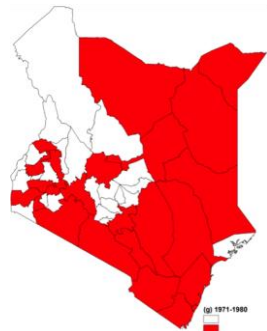
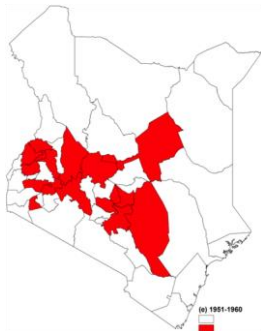
- Outbreak in 1931 - started in Kisumu and South Nyanza spread north-east, by 1950 all districts in Western Kenya had experienced rabies
- Up to 1950 - except for a few isolated cases in Wajir, Mandela, Laikipia and Kitui - most cases were in Western Kenya/West of Rift Valley
- Disease Control <1950: Vaccine from Pasteur Institute Algiers, and killing of stray dogs

Spatial spread: period 1951 - 1980



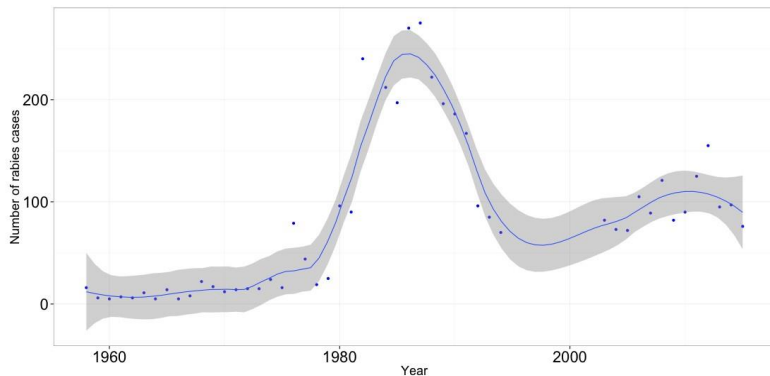
- 1951-60: Disease persists in Western Kenya, and new outbreaks occur east of the Rift Valley, in Central Province (1957), further spreading to Isiolo and Kitui districts (1957-59)
- 1951-60: First use of locally produced vaccine - passaged through embryonated eggs

Spatial spread: period 1951 - 1980



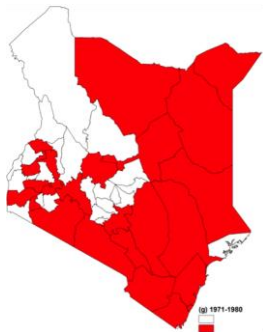
- 1953: Adoption of a policy on **compulsory annual vaccinations** (ear tattooing for vaccinated dogs), **baiting and shooting of strays** after vaccinations, **house to house searches** and owners of unvaccinated dogs prosecuted and dogs vaccinated
- By 1974 - rabies was *virtually eliminated* in Kenya - except for isolated cases in a few districts and a persistent foci of infection in Machakos and Kitui where a sylvatic cycle of rabies disease was postulated.

Temporal pattern of rabies cases: period 1958 - 2015



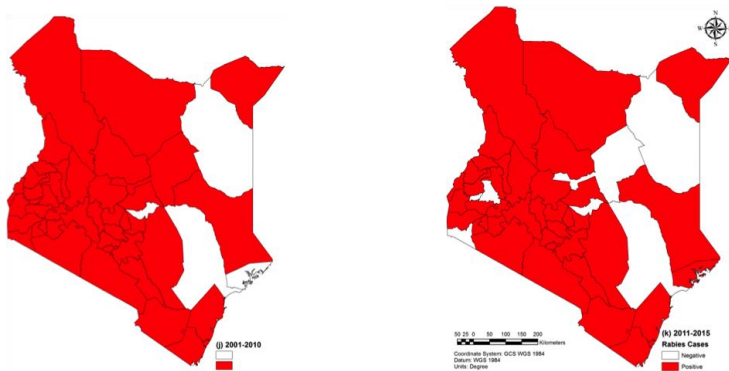
- End of 1974 - outbreak in Taveta, spread to the coastal strip including Mombasa Island by 1979.
- 1979 - a major incursion in Trans Mara close to Tanzania border - spread northwards to South Nyanza.
- Same year - yet another outbreak beginning in Bungoma district - near Uganda border.

Spatial spread: period 1971 - 2000



- Early 80's: Economic, social and political changes drastically affected disease control programmes negatively, including in neighbouring countries.
- Additionally, implementation of the Structural Adjustment Policies that converted veterinary services from a public good to the private sector.

Spatial spread: period 2000 - 2022



- To-date rabies is endemic in all counties in Kenya
- The magnitude of the disease is masked by the limited surveillance



REPUBLIC OF KENYA
Ministry of Health and
Ministry of Agriculture, Livestock and Fisheries



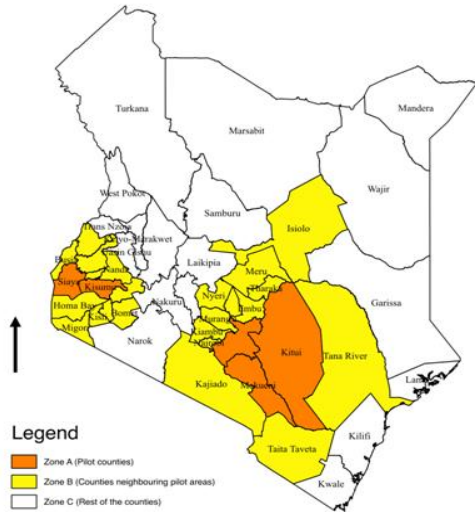
Strategic Plan
for the Elimination of
Human Rabies in Kenya
2014 - 2030

ZDU REPUBLIC OF KENYA
ZOOONOTIC
DISEASE UNIT

Strategic Plan for Elimination of Rabies in Kenya

A perfect case of one health in
action

Strategy for rabies Elimination of Human rabies in Kenya



Mass dog vaccination

Prompt provision of PEP

Public Health Education and awareness on rabies

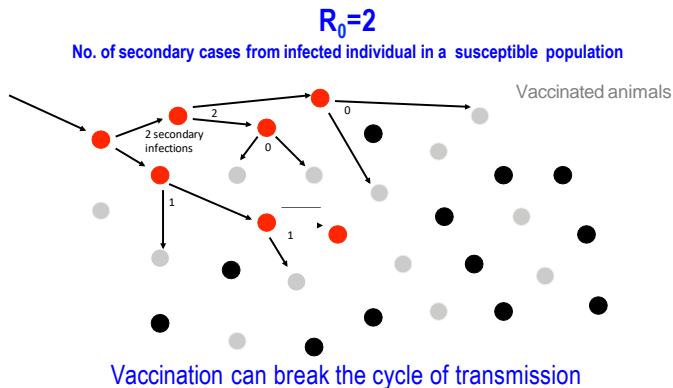
Enhanced surveillance for rabies in humans and animals

Advocacy, Communication and Social Mobilization

The six Guiding principles of the strategy

1. Rabies control is a public good – subsidize costs
2. Domestic dogs transmit at least 98% of human rabies in E.Africa
3. Rabies cycles are maintained by domestic dogs in East Africa ; no evidence of role of wildlife
4. Sustained annual mass dog vaccination , at least 3 years, 70% eliminates rabies
5. More than 70% of dogs in Kenya are owned and are accessible for parenteral vaccination

a) Compulsory annual vaccinations for all dogs?



What proportion of the susceptible dog population should be vaccinated to achieve elimination?

- **70% of the dog population**
- **Three consecutive years**

b) Baiting and shooting of strays?

Destruction of stray dogs is NOT an effective strategy!

- Majority of “stray dogs” are owned ^{a, b}
- Dog density does not strongly influence rabies transmission^c

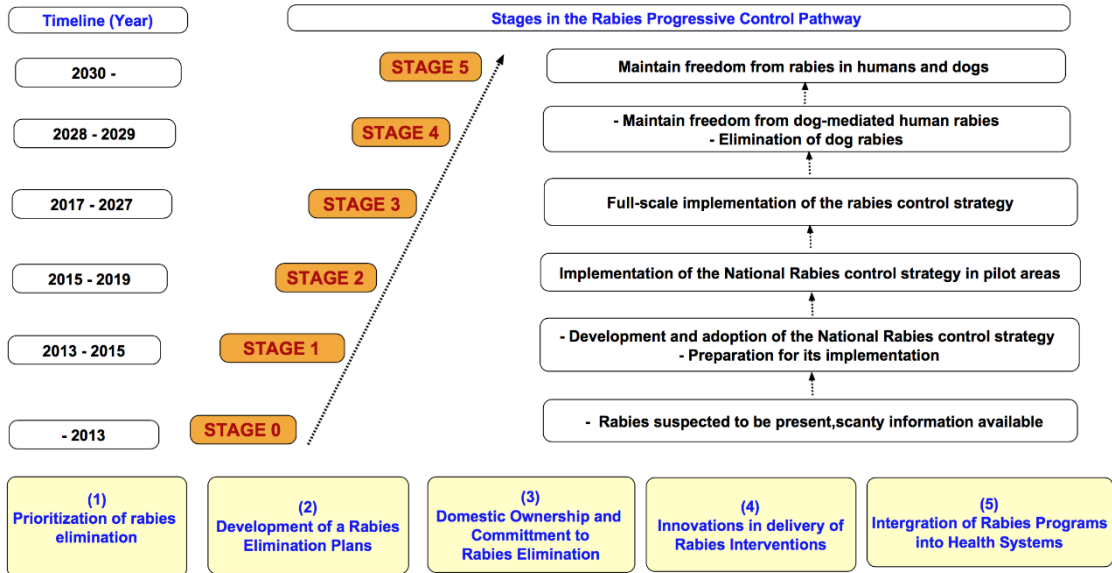


^aGsell *et al*, 2013

^bKaare *et al* 2009

^cHampson *et al* 2009 PLoS Biol 7:e53

Stepwise approach to rabies elimination in Kenya



Lessons learnt - Kenya



Mass dog vaccinations most successful with involvement of local and national governments



Mass dog vaccinations should be data driven – Post-vaccination surveys and use of phone apps

Lessons learnt - Kenya



**Keeping dog vaccination costs low -
Innovations in vaccine delivery**



**Development of a dog vaccine
demand and supply system**

THANK YOU

