Strategic Plan for Elimination of Rabies in Kenya

A perfect case of one health in action

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Rabies in Kenya

• Kenya has a 100 year history of rabies

• First confirmed human case recorded in 1912

• Domestic dogs transmit at least 98% of human rabies in Kenya

• Estimated 300-1000 human rabies mortality

• The true burden of the disease is masked by the poor surveillance system
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

- Estimated human population 50 million people
  - 2.5 - 5.2 million dogs - Rural Kenya
  - 850,000 dogs – Urban Kenya
The six Guiding principles of the strategy

• Rabies control is a public good – Government responsibility

• Domestic dogs transmit at least 98% of human rabies in E.Africa

• Rabies cycles are maintained by domestic dogs in East Africa; no evidence of role of wildlife

• Sustained annual mass dog vaccination, at least 3 years, 70% eliminates rabies

• More than 70% of dogs in Kenya are owned and are accessible for parenteral vaccination
Stepwise approach to rabies elimination in Kenya

Timeline (Year)
- 2030 -
- 2028 - 2029
- 2017 - 2027
- 2015 - 2019
- 2013 - 2015
- 2013

Stages in the Rabies Progressive Control Pathway

STAGE 0
- Rabies suspected to be present, scanty information available

STAGE 1
- Development and adoption of the National Rabies control strategy
- Preparation for its implementation

STAGE 2
- Implementation of the National Rabies control strategy in pilot areas

STAGE 3
- Full-scale implementation of the rabies control strategy

STAGE 4
- Maintain freedom from dog-mediated human rabies
  - Elimination of dog rabies

STAGE 5
- Maintain freedom from rabies in humans and dogs

(1) Prioritization of rabies elimination
(2) Development of a Rabies Elimination Plans
(3) Domestic Ownership and Commitment to Rabies Elimination
(4) Innovations in delivery of Rabies Interventions
(5) Integration of Rabies Programs into Health Systems
Mass dog vaccinations

- Main pillar of rabies control

- Feasibility? Viability? sustainability?

  o South Africa – Kwa Zulu Natal province
  Animal rabies has been reduced by >50% in 3 years

  o Philippines
  The number of human deaths from rabies has decreased significantly by 70% reduction

  o Tanzania/Zanzibar
  Significant impact in Serengeti, Zanzibar
Kenya rabies elimination activities

Siaya County – Zone A
- Government-led with dog vaccine support from OIE Vaccine bank
- Surveillance through KEMRI/WSU and ZDU

Kisumu County – Zone A
- 2017 World Rabies Day celebration and 10km rabies run
- Rabies elimination activities not started

Machakos County – Zone A
- Preliminary rabies elimination activities - ANAW

Narok and Kajiado Counties
Zone B and C
- VSF Germany partnering with Serengeti Health Initiative (providing vaccines)

Nandi County – Zone B
- Sharon-live-On Foundation

Samburu County – Zone C
- Action for cheetahs
- Rabies and distemper
- 2017

Laikipia County – Zone C
- (2015-2018)
- Laikipia Rabies Vaccination Campaign

Kitui County – Zone A
- Preliminary dog ecology studies
- Mass dog vaccinations not started yet

Makueni County – Zone A
- Led by county-government
- 3-years of rabies elimination activities
- Long-standing collaboration with World Animal Protection
- Surveillance through KEMRI/WSU and ZDU

Rabies elimination activities in 10 of 47 counties
Surveillance for rabies in the veterinary sector in Kenya

- Rabies is a notifiable disease
  - All suspect cases of rabies should be reported to the DVS and to the OIE

- Surveillance is a devolved function
  - From National to County function (47 counties carrying independent surveillance and reporting)

- Cases of suspect rabid dogs reported to the County DVS and DVS simultaneously
  - Development of a smartphone-based Kenya Animal Bio-surveillance App (KABs) for syndromic surveillance and reporting for rabies (bite cases in animals and humans)

- Weak link between veterinary reports state of biting dogs with the health sector
  - Integrated Bite Case Management only practiced in areas with ongoing rabies research
Improving data quality

- Toll-Free Number
- Hospital Based Surveillance
- Dog Cohort Study
- Community Surveillance
- Contact Tracing
- Sample Collection
Rabies diagnosis - labs

- 6 regional veterinary investigative labs and one central veterinary lab in Kenya
- DFAT confirmatory diagnosis in 3 of the 7 labs
- Human diagnosis – only in the Central Veterinary lab (until 2012), now also at KEMRI lab and recently at National Public Health laboratories (NPHLs)
- DRIT and PCR – staff from several labs trained. Used routinely at the KEMRI lab

Cumulative number of rabies cases (1958 – 2017) and location of veterinary labs (blue dots) that can make rabies diagnosis.
Rabies awareness

Rabies Free Kenya 10km Run Nandi Edition

22nd Sept 2018
VENUE: Kapsabet Show Ground
REGISTRATION: KSH 300
CONTACT: 0725 772 643 / 0719 239 391

WORLD RABIES DAY 2017
10 KM RUN
Jomo Kenyatta Sports Grounds
Kapsabet - 28 September 7 AM
Lessons learnt - Kenya

• Mass dog vaccinations most successful with involvement of local and national governments
  • Domestic funding for mass dog vaccination is a process involving:
    • Preparation of a county-level elimination plan
    • Development of cabinet papers to solicit for government fund
    • Lobbying appropriate department heads and leaders to prioritize rabies
    • External support/funds an important catalyst for domestic ownership and funding of rabies elimination programs
    • Unexploited opportunities for crowd-funding and foundations at the local levels

• Mass dog vaccinations should be data driven – Post-vaccination surveys and use of phone apps
  • Estimation of dog population sizes and vaccination coverages are easily ignored and should be emphasized as critical components of the elimination strategies
  • Obtaining collars/marker sprays/vaccination cards alongside vaccines
  • Evidence of adequate spatial vaccination coverage difficult to gather without use of phone-based apps supporting vaccination campaigns (e.g. the WVS app to aid mapping)
Cost data from vaccinating 45,000 dogs

- Vaccine cost: 0.46
- Vaccinator's cost: 0.28
- Post-vaccination Survey: 0.21
- Consumables cost: 0.11
- Transport costs: 0.07
- Publicity cost: 0.05

Cost 1.17 dollars/dog vaccinated
Lessons learnt - Kenya

- **Keeping dog vaccination costs low - Innovations in vaccine delivery**
  - Vaccinations during school holidays, vaccination sites in schools and shopping centers
  - Two sites per team per day, engaging a local person at the village for data entry
  - Use of volunteer vaccinators, large vaccination campaigns, intense campaigns over a short period
  - Bulk procurement of vaccines

- **Development of a dog vaccine demand and supply system**
  - Disconnect between national and county level dog vaccine supply systems (county do “autonomous” vaccine procurement, OIE vaccine bank linked to the national/DVS office)
  - Forecasting for rabies vaccine demand only possible with county-level elimination plans
Lessons learnt - Kenya

- Linking animal surveillance to human surveillance for rabies
  - Health-facilities treat bite patients without information from the veterinary sector
  - Multiple recording systems - health-facility specific software and DHIS2
    - Patient-level data
    - Community and health-facility based syndromic surveillance (acute encephalitis with bite history)
    - Animal syndromic surveillance – include bite cases (Kenya livestock and wildlife syndromic surveillance)
- Multiple persons involved with bite cases:
  - Investigation of bite cases by public health and animal health officers
  - Bite patients seen by clinicians
  - Data on PEP kept by the health facility pharmacist
Lessons learnt - Kenya

- Rabies surveillance should include both outpatient and inpatient monitoring of suspect rabies cases
  - Outpatient clinics – reported dog bites – investigated to know the status of the biting dog
  - In-patient – acute encephalitis cases with history of bite
    - Ante-mortem diagnosis for rabies (saliva and skin biopsies)
    - Post-mortem diagnosis for rabies (emphasizes to make this routine with quick turn-around time with diagnosis results)
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