Dr Rauna Athingo

For: North Africa Regional meeting on dog-mediated rabies elimination: towards effective regional and national elimination strategies, Tunis, Tunisia, 24-25July 2019
Outline

• Introduction
• Rabies situation in Namibia
• Control program implemented
• Diagnostic and Surveillance facilities
• The Rabies control project inception and project activities implementation – 1st Phase (2016-2018)
• Campaign organization
• No of dogs cats vaccinated (cats)
• Impact of mass dog vaccination on rabies cases in animals and in humans
• Rabies Elimination project-2nd phase (2019-2021)
• Challenges and opportunities -Cross border problems
The Republic of Namibia
Background information

- Namibia in the world

- Namibia is a large country 825,615 km² with the second smallest population density globally - 2.6 person/sq. km.
- Projected population 2.59 million people (NSA 2018)
- Majority lives in the Northern Communal Area (NCA)
- Namibia is ethnically diverse - over 11 ethnic groups and 22 different languages.
- It shares its borders with Angola, Botswana, South Africa, Zambia and Zimbabwe.
Diseases status

- Foot and Mouth Disease Freedom without vaccination south of the Veterinary Cordon Fence (VCF)
- Lungsickness (CBPP) Freedom south of the VCF
- Peste des petits ruminants (PPR) Freedom south of the VCF and endorsed surveillance program in the NCA
- Negligible risk status for “Mad Cow Disease” (BSE)
- Endorsed Foot and Mouth Disease Control Programme
- Endorsed Lungsickness (CBPP) Control Programme
- Participation in international trade of animals and animal products to countries such as: European Union, Switzerland, Norway, Hong Kong, USA, Russia, South Africa, China Zimbambwe.

- Rabies- by 2030??
Why NCA regions?

- Hot spots for dog and human rabies
- Country divided into 14 regions, 57% in the NCA
- Number of centers of major economic activities

**Urban Rural ratio 43:57 (NSA 2011)**

<table>
<thead>
<tr>
<th>Region</th>
<th>Census 2018</th>
<th>Projected 2018</th>
<th>Constituencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oshana</td>
<td>194,577</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Oshikoto</td>
<td>200,686</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Omusati</td>
<td>252,931</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Ohangwena</td>
<td>260,190</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Kunene</td>
<td>102,485</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Kavango West</td>
<td>90,514</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Kavango east</td>
<td>153,255</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Zambezi</td>
<td>102,485</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,357,123</strong></td>
<td><strong>70 (64)</strong></td>
<td></td>
</tr>
</tbody>
</table>

263,376 total sq. km
Rabies situation in Namibia

• Rabies is a notifiable disease in Namibia as per Animal Health Act 1 of 2011 – reporting of the disease to authority

• Recording of all relevant information on Disease Report Form (DRF) and submission to the Epidemiology

• Samples of incriminated animals are submitted to one of the competent laboratories

• Dog samples associated with a human bite.

• Dog bite cases and potential rabies exposures have to be reported to the nearest state veterinary official or public health official
Diagnostic and Surveillance facilities

- Laboratory confirmed surveillance data:
  - Central Veterinary Laboratory and the Regional Laboratory (RL), Ondangwa.
  - Fluorescent Antibody Test (FAT) following WHO and OIE recommended protocols
  - Occasionally, DRIT additionally applied for rabies routine diagnosis at the CVL to provide validation

- Sometimes PCR
Geographical distribution of dog rabies, Namibia, 2011-2018

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of cases</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Communal Areas (NCAs)</td>
<td>630</td>
<td>92.5</td>
</tr>
<tr>
<td>South of Veterinary Cordon Fence (SVCF)</td>
<td>47</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>497</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Vaccination coverage 2014-2016

Dog samples tested for rabies from 2015 to 2016

- **Positive**
- **Negative**
Rabies surveillance in dogs 2011-2017

Rabies cases (red dots)
Reported rabies suspects (orange dots)
dog samples tested negative (blue dots).
Spatial distribution of dog rabies 2015-2016
Geographic distribution of rabies in Humans, 2011 – 2017

- Absolute number of cases per regions
- Rabies incidence per 100,000 people
## Geographic distribution of rabies in Humans, 2011 – 2017

<table>
<thead>
<tr>
<th>Area</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern communal Areas (North of Veterinary Cordon Fence)</td>
<td>110</td>
<td>97</td>
</tr>
<tr>
<td>Central and South of Namibia (South Of the Veterinary Cordon Fence)</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>113</td>
<td>100</td>
</tr>
</tbody>
</table>
Age distribution among humans in Namibia, 2011 - 2017

<table>
<thead>
<tr>
<th>Age group</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4 years</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>(youngest 9 months)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 – 9 years</td>
<td>37</td>
<td>33</td>
</tr>
<tr>
<td>10 – 14 years</td>
<td>21</td>
<td>19</td>
</tr>
<tr>
<td>15 – 19 years</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>≥ 20 (oldest 80 years)</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>113</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
Suspected Human Rabies cases VS. Deaths in Namibia from 2008 - 2017

Year


Frequency

Suspected Rabies Cases

Deaths
Control program implemented

- Rabies is a Notifiable disease in Namibia as mandated under Animal Disease Act (Act 1 of 2011)
- Free Rabies control for nearly three decades
- Rabies cases are still on the increase in both animals and humans especially in the Northern Communal Areas (NCAs)
- National strategy translated into action plan for implementation
The Rabies control project inception and project activities implementation – 1st Phase (2016-2018)

- National Strategy launched March 2015
- Launching of pilot control April 2016
- Rabies action plan formulation and implementation rabies activities implementation
Objective of the strategy

- **Immediate**
  - Decreased rabies cases in dogs

- **Long term**
  - Elimination of dog mediated human rabies

- **Key Elements**
  - Capacity building
  - Mass dog vaccination campaign
  - Education and awareness
  - Stakeholders engagement
  - Understand the knowledge, attitude and practice of people that could influence rabies control activities
Local and International stakeholders engagements

- Traditional authorities
- Local authorities
- Regional councilors
- Ministry of Education
- Ministry of Health
- Ministry of Information, Technology and Communication
- University of Namibia - School of Public health and Faculty of Veterinary Medicine
- Veterinary Association of Namibia
- Law enforcement
- Welfare organization - SPCA
- MAWF
- Private sector/Business communities
- Farmers Union/Farmers
- OIE/FRG/FLI
Why a need for stakeholders consultations?

- Seeking support during the project and thereafter
- Initiate permission to visit their area of jurisdiction
- Mobilize communities, promote the project and introduction to the communities
  - Took part during the selection of local casual labourers (communities participatory leading to project ownership)
  - Announcement of vaccination centres every day on national radio during the mass vaccination campaign
  - Waste management within towns, hospitals and open markets to avoid attracting stray dogs to free food
  - Promote responsible pet ownership
Capacity building
Rabies Education at school talks
Awareness and Education

• Target children – 67% deaths children < 16 yrs
• Health promotion – key messages
• World Rabies Day
• Project education officer
• Education department
Organized mass dog vaccination campaigns

Team-led strategy with community participation

house to house vaccination

fixed points
Results- No of dogs vaccinated (cats) – Pilot phase 2016

- Usual vaccination figure 5,000-6,000,
- Targeted coverage 70% of 12,000

1) First round Vaccination figures:

<table>
<thead>
<tr>
<th>Species</th>
<th>#Vaccinated</th>
<th>Census</th>
<th>Coverage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>24,638</td>
<td>25,649</td>
<td>96%</td>
</tr>
<tr>
<td>Cat</td>
<td>2,073</td>
<td>2,160</td>
<td>95%</td>
</tr>
<tr>
<td>Total</td>
<td>26,711</td>
<td>27,809</td>
<td></td>
</tr>
</tbody>
</table>
# Results – Pilot 2016

## 1) Second round vaccination figures:

<table>
<thead>
<tr>
<th>Species</th>
<th># Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>12,634</td>
</tr>
<tr>
<td>Cat</td>
<td>907</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>13,541</strong></td>
</tr>
</tbody>
</table>

- About 50% (6,368/12,634) dogs vaccinated for the first time
- 83% (5,286/6,368) are 6 months and younger
Results- NCAs 2017

- Usual vaccination figure 48,850-60,211,
- Targeted coverage 70% of 104,071 (2016 dog population)

1) Targeted Vaccination figures:

<table>
<thead>
<tr>
<th>Species</th>
<th>#Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>61,195</td>
</tr>
<tr>
<td>Cat</td>
<td>6,484</td>
</tr>
<tr>
<td>Total</td>
<td>67,679</td>
</tr>
</tbody>
</table>

2) Annual vaccination campaign figures:
- 42673 pets 90.5% (38,619) dogs
- Total vaccinated dogs 99,814

- Total pet vaccinated 110352
Results - NCAs 2018

1) Targeted Vaccination figures:

<table>
<thead>
<tr>
<th>Species</th>
<th>#Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>38350</td>
</tr>
<tr>
<td>Cat</td>
<td>4865</td>
</tr>
<tr>
<td>Total</td>
<td>43,215</td>
</tr>
</tbody>
</table>

2) Annual Vaccination figures:

<table>
<thead>
<tr>
<th>Species</th>
<th>#Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dog</td>
<td>34603</td>
</tr>
<tr>
<td>Cat</td>
<td>3845</td>
</tr>
<tr>
<td>Total</td>
<td>38,448</td>
</tr>
<tr>
<td>Total Vaccinated</td>
<td>81,663</td>
</tr>
</tbody>
</table>
Measured data for monitoring progress of rabies programmes

Vaccinated dogs from 2014-2018

Dog samples tested for rabies in 2015-2019

Pilot phase 2016- increased campaign figures by 17%
Roll out 2017- increased campaign figures by 44%- 54%
# Age distribution among dogs

<table>
<thead>
<tr>
<th>Age group</th>
<th>NO. of dogs</th>
<th>Percent (%)</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-3 months</td>
<td>461</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>4-11 months</td>
<td>642</td>
<td>27</td>
<td>46%</td>
</tr>
<tr>
<td>1-3 years</td>
<td>802</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>&gt; 3 years</td>
<td>472</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2,377</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
### Age distribution, Ohangwena region, 20 – 30 August 2018

<table>
<thead>
<tr>
<th>Age groups</th>
<th># Vaccinated</th>
<th>1st time</th>
<th>Booster</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 6 M</td>
<td>1721</td>
<td>1689</td>
<td>32</td>
</tr>
<tr>
<td>7 M- 11 M</td>
<td>557 (53%)</td>
<td>536</td>
<td>21</td>
</tr>
<tr>
<td>1 - 2 years</td>
<td>837</td>
<td>602</td>
<td>234</td>
</tr>
<tr>
<td>3 - 5 years</td>
<td>902</td>
<td>449</td>
<td>453</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>268</td>
<td>110</td>
<td>158</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4,285</strong></td>
<td><strong>3,386 (79%)</strong></td>
<td><strong>899 (21%)</strong></td>
</tr>
</tbody>
</table>
Role of Human Health in rabies elimination

• Health education and promotion on rabies and prevention measures (Primary Health Care Directorate)
• Management of animal bite cases
  • PEP and Rabies Immunoglobulin (RIG) administration
  • Bite wound Management
• Surveillance of suspected human rabies case
• Detection and response to outbreaks in collaboration with veterinary sector and other relevant stakeholders
• Laboratory confirmation of suspected human rabies case (ante-mortem and post-mortem)
Impact of mass dog vaccination on rabies cases in animals

- Increased number of dogs vaccinated (over 210,000 dogs)
- Marked reduction of dog rabies cases
- Marked reduction human rabies cases (ZERO reported case in 2019)
- Improved veterinary performance services on rabies control:
  - Human resources capacity building
  - Enhanced rabies surveillance activities
Impact of mass dog vaccination on rabies cases in animals
Impact of mass dog vaccination on rabies cases in humans

Map Legend

Human_Rabies Cases, 2011-2018/Hospital
1. Katima Mulilo Hospital (05)
2. Rundu Hospital (41)
3. Eenhana Hospital (01)
4. Engela Hospital (16)
5. Onandjokwe Hospital (10)
6. Oshakati Hospital (23)
7. Oshikuku Hospital (08)
8. Outapi Hospital (05)
9. Opuwo Hospital (01)
10. Katutura Hospital (02)
11. Walvis Bay Hospital (01)

Map compiled by Directorate of Veterinary Services, Epidemiology Section, Tel: 061-208 7499 - Windhoek

Graphs:

a) Human rabies cases

b) Rabies incidence (1/100,000)

c) Human rabies cases

b) Human rabies cases

d) Human rabies cases

age classes in years
Rabies Elimination project- 2\textsuperscript{nd} phase (2019-2021)

The main activities

- 100 000 rabies doses-OIE through donor funding
- Improve capacity control dog-mediated rabies
- Mass dog vaccination campaign (August 2019 school holiday)
- Improve on data collection- data loggers (GARC)
- Survey- KAP, estimate dog population, socio-cultural and rabies burden
- Extend rabies education and awareness in regions
- Enhance rabies surveillance- FLI twining project (field test)
- Intersectoral coordination- Establishment of national Task force, Emergency Operational Centre - IBCM
- Cross border harmonization of rabies control program (Angola)
- Documentation of project activities
Strength/Achievements

• Political commitment and support
• Stakeholder and public engagement and participations
• Integrated National program
• International support (OIE, Donor funds)
• Rabies advocacy using various platforms
Challenges and opportunities

- Vast territory
- Porous border
- Secure funding and sustain (APP and AWP)
- Timing of vaccination campaigns
- Nomadic lifestyle of people moving in search of grazing areas
- Possible disease outbreak coinciding in some regions
- Surveillance mostly depends on reporting from community and samples presented to local hospitals, hence inter-sectoral collaboration very crucial
- Inconsistence on data collection and reporting
- Population dynamics of dogs
- Stray dogs management for vaccination

- Strengthen one health approach
- Improve on resources allocation
- Campaign evaluation and implement the cost effective strategy
- Improve on vaccination campaign monitoring (use better tools to evaluate vaccination campaign)
- Improve on integrated surveillance (IBCM)
- Transboundary coordination
Acknowledgement

- OIE sub-regional representative office for funding my attendance to the North Africa meeting