Rabies Epidemiological Bulletin

On behalf of the Global Alliance for Rabies Control

Inaugural ARACON meeting

Bangkok, Thailand

13-14 March 2018
We know data collection is difficult
There is a problem with current data
Discrepancies in Data Reporting for Rabies, Africa

Louis H. Nel

Human rabies is an ancient disease but in modern times has primarily been associated with dog rabies—endemic countries of Asia and Africa. From an African perspective, the inevitable and tragic consequences of rabies require serious reflection of the factors that continue to drive its neglect. Established as a major disease only after multiple introductions during the colonial era, rabies continues to spread into new reservoirs and territories in Africa. However, analysis of reported data identified major discrepancies that are indicators of poor surveillance, reporting, and responsible data reporting. Analyses of examples from Africa indicate that the above aspects are seriously compromised.

Factors Leading to Complacency and Neglect of Rabies

Rabies virus, a classical zoonotic pathogen, has an extensive host range and can probably infect all terrestrial mammals. Although vampire bat rabies has a major effect
### International Reporting Inconsistencies

<table>
<thead>
<tr>
<th>Country</th>
<th>Nat database</th>
<th>OIE WAHID</th>
<th>Meeting</th>
<th>Oral comms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>1000–2000</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Lesotho</td>
<td>3</td>
<td>11</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Liberia – Libéria</td>
<td>8</td>
<td>Unknown – Inconnu</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Madagascar</td>
<td>8</td>
<td>50</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Malawi</td>
<td>2</td>
<td>3</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Mali</td>
<td>2</td>
<td>3</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Mauritania – Mauritanie</td>
<td>40</td>
<td>Unknown – Inconnu</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>Mozambique</td>
<td>18</td>
<td>10</td>
<td>1</td>
<td>62</td>
</tr>
<tr>
<td>Namibia – Namibie</td>
<td>18</td>
<td>10</td>
<td>1</td>
<td>62</td>
</tr>
<tr>
<td>Niger</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Rabies Epidemiological Bulletin concept: 2015
Rabies Epidemiological Bulletin

- Based on the DHIS2 platform
  - Open source software
  - Used in more than 60 countries in MoH

- Rabies Epidemiological Bulletin active in Africa since June 2016

- Available in English and various other languages
Who owns the data?

• The data belongs to the country

• The REB is simply a tool for countries to use:
  • Designed to ease data reporting
  • Simplify data collection and analysis

• Countries must provide permission for their data to be shared
  • Only made public with country’s permission

• Countries are requested to share data permission sharing form
### Tracker capture

<table>
<thead>
<tr>
<th>Registering unit</th>
<th>Tracker_First Name</th>
<th>Tracker_Surname/Family Name</th>
<th>Tracker_Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya (KE)</td>
<td>mimi</td>
<td>weewe</td>
<td>Male</td>
</tr>
<tr>
<td>Kenya (KE)</td>
<td>momo</td>
<td>karuki</td>
<td>Male</td>
</tr>
<tr>
<td>Kenya (KE)</td>
<td>ashman</td>
<td>mwazondo</td>
<td>Male</td>
</tr>
<tr>
<td>Kenya (KE)</td>
<td>Mzee</td>
<td>Makuto Mserangeti</td>
<td>Male</td>
</tr>
<tr>
<td>Makueni District Hospital</td>
<td>Louise</td>
<td>Taylor</td>
<td>Female</td>
</tr>
<tr>
<td>Makueni County</td>
<td>Celeste</td>
<td>Schepers</td>
<td>Female</td>
</tr>
</tbody>
</table>

Number of pages: 1  Number of rows per page: 50  Jump to page: 1
GARC Data Logger (GDL) and its integration into the Rabies Epidemiological Bulletin
GARC Data Logger

• Robust, lightweight handheld device

• Works solely on GPS
  • No running costs
  • Works anywhere in the world

• Collects essential data
  • GPS
  • Time and date
  • 3 questions
  • Campaign information
**GARC Data Logger integration**

- Direct integration into DHIS2
  - Simple upload of data

- Once in DHIS2, data is automatically aggregated and visualised
  - Perfect to visualise progress of vaccination campaigns daily
Data Sharing

• Transparency to work together
  • Address that rabies is transboundary

• Automated reporting to international organisations
  • WHO
  • Working to include OIE and others

• Encourage you to sign your data sharing permission form
## Standardised indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Disaggregation</th>
<th>Description</th>
<th>Rationale</th>
<th>Reporting period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of bite cases in humans</td>
<td>Age: &lt;5 years, 5–14 years; ≥15 years; unknown age</td>
<td>Number of bite cases reported at a health-care facility, disaggregated by age, sex, and wound category</td>
<td>To determine at-risk populations (children, adults) and the numbers of people who have been potentially exposed to a rabid animal; this indicator influences decisions regarding human vaccine procurement and targeted education. This indicator also excludes snake bites.</td>
<td>Annual</td>
</tr>
<tr>
<td></td>
<td>Sex: male, female; unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wound category: I, II, or III</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Doses of human vaccines purchased</td>
<td>None</td>
<td>Number of human vaccines purchased for the country</td>
<td>To determine the number of vaccines available in the country and whether this complies with PEP requirements</td>
<td>Annual</td>
</tr>
<tr>
<td>Cost per vaccine (US$)</td>
<td>Private sector</td>
<td>Cost per vaccine administered in a government institution (including all associated costs such as doctor’s fees, consumables, etc.)</td>
<td>To determine the costs associated with procurement and administration of vaccine for budgetary purposes and to advocate the allocation of funds toward rabies control efforts</td>
<td>Annual</td>
</tr>
<tr>
<td></td>
<td>Public sector</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Automated sharing of data

Click on the 'Download preview' button to download a .csv file containing all the events that are going to be sent. Once ready, click on the 'Send data' button and wait until the events are uploaded to the server.

When the event uploading finishes, the message 'Events sent successfully' will be shown in this box.

Then the two buttons above will become available and you will be able to download the following files:

- data-summary.json: The json file with all the events sent.
- data-attachments.tar.gz: A compressed folder with all the files related to those events.
Making a statement with data

Asia: Annual Cost of Rabies

$6,702,844,102 USD

- $385,538,571 Dog vaccination
- $802,920,950 Vaccine production management
- $318,881 Surveillance
- $3,652,978,031 Productivity Losses
- $419,045,833 Livestock Losses

$26,589,22 PEP TREATMENT

$1,225,773,036 Budget Losses

AVOIDABLE LOSSES $6,660,728,927 = $1.67 per capita

Current Spending on Rabies Vaccination

AFRICA

- 1.46 PEP cost per capita
- 0.20 Vaccine cost per capita
- 6% Dogs vaccinated
- 20.9 Cases deaths per million population

ASIA

- 15.20 PEP cost per capita
- 1.00 Vaccine cost per capita
- 18% Dogs vaccinated
- 9.33 Cases deaths per million population

LATIN AMERICA

- 24.10 PEP cost per capita
- 11.46 Vaccine cost per capita
- 57% Dogs vaccinated
- 0.34 Cases deaths per million population

WHY WE NEED TO END RABIES NOW

Canine rabies is one of the world’s oldest diseases, eliminated in countries like the US and the UK, but still a daily threat to millions around the world.

Every 9 minutes, a person dies from RABIES.

100% of human cases are preventable.

Domestic dogs cause over 99% of human rabies deaths.

Vaccinating 70% of dogs in at-risk areas can eliminate canine rabies.

Nearly 85% of the world is at risk of contracting canine rabies.

95% of human rabies deaths occur in Africa and Asia.

Canine rabies kills more than 59,000 people every year.

2.9 million lives are saved annually due to preventative measures.

1 PEP - Post Exposure Prophylaxis is a course of vaccinations that protects a person against rabies after exposure to the virus. Costs are in U.S. currency.

2 PEP - Post Exposure Prophylaxis is a course of vaccinations that protects a person against rabies after exposure to the virus. Costs are in U.S. currency.

Global Alliance for Rabies Control

Global Alliance for Rabies Control Partners for Rabies Prevention
Data supporting the estimates

Total Number of Human Cases

- Total Human Negative
- Total Human Positive
- Human Rabies Deaths Estimates

Year: 2015

- 0 Total Human Negative
- 38 Total Human Positive
- 523 Human Rabies Deaths Estimates
Data supporting the estimates
We aim to make data collection and analysis easy!
https://bulletin.rabiesalliance.org

Endrabiesnow.org