RABIES IN CHINA

1. Diagnostic Laboratory on Rabies and Wildlife Associated Zoonoses (DLR), Chinese Ministry of Agriculture.
2. Changchun Veterinary Research Institute, Chinese Academy of Agricultural Sciences
Rabies in the World

Animal rabies (red)  Human rabies

Global cases: Asia: \(~31\,000\) (56\%), Africa: \(~24\,000\) (44\%), Other continents: <500

(Who)
Annual Death of Human Rabies in Asia: ~ 31 000. Predominant source: rabid dogs
Rabies in China

- most endemic in south
- mainly in rural area (90%)
- transmission source: rural dogs, 95%

Human rabies situation in 2007

- above 150 cases per year
- 100 to 150 cases per year
- 50 to 100 cases per year
- 20 to 50 cases per year
- blow 20 cases per year
Rabies in China

• Human rabies deaths between 1950 to 2010 (MOH, China)

(China CDC)
Molecular epidemiology


Transmission dynamics

Animal Rabies

Unclear epidemiological background:
1. Very low awareness of reporting animal rabies: People, including vet practitioners, rarely report suspected rabid animals.
2. Surveillance used to look at healthy-looking dogs by detection of saliva, neglect ill or suspected dogs.
3. The majority of rabid, suspected dogs escape, only a few are reported and submitted to laboratory diagnosis.
4. Once injured by dogs people usually go to hospital for PET, they have no awareness to report.
5. Dead animals (dogs, canids, bats) are not collected and submitted to laboratory check when watched.
6. The animal rabies information collected by human CDCs is not shared effectively with animal CDCs.
Animal Rabies

Confirmed animal vectors:
1. Dog population: officially about 80m.
2. Rural dogs, not pet dogs, contributes to 95% of human cases
3. Domestic animals: pig, sheep, cow and sika deer
Rural dogs in China

Free roaming dogs with ownership
Rural dogs in China

Free roaming stray dogs without ownership
Animal Vaccines

- **Live vaccines**: Single Flurry LEP vaccine is widely used for rural dogs at governmental expense. Combined vaccine with ERA, canine distemper, canine adenovirus, parvovirus and parainfluenza virus is used mainly in urban dogs at the owner’s expense.

- **Imported killed vaccines**: four products from Intervet, Merial, Fort Dodge and RabVac.

- **Domestic killed vaccines**: licensed last year. Using different viral strains (CVS-11, Flurry LEP, PV, etc).

- **Genetically modified vaccines**.
Control of dog rabies

- Programme: MoA initiated an annual Rabies Immunization and Surveillance Programme in 2005, requiring full vaccination of all types of dogs throughout the country.
- Dog management: In urban areas, a well-established dog registration with vaccination is in place at the owner’s expense, but in rural areas no similar management established.
- The vaccinated dogs are usually labeled with ear tags (rural areas) or biochips (some urban areas).
Control of dog rabies

The main reasons for low coverage in rural areas are:

- not widely accepted due to poor awareness
- the high cost of vaccine administration
- danger of bite exposure to rabid dogs.
- insufficient finance of the local governments.

Pictures of vaccine shot to rural dogs
Pilot Vaccination in Guangxi
(Data from Chinese CDC)

<table>
<thead>
<tr>
<th>Prov</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
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- Cover all counties and districts of Nan Ning City from 2007~2010.
- Two mass vaccinations of dogs applied in Spring and Autumn.
- Immunization coverage increased from 52% in 2007 to 92.46% in 2009.
- 2010: human rabies decreased by 70% compared with 2007, and the number of rabies-affected counties declined by 4.
## Pilot Vaccination in Guangxi

Human rabies in 12 counties after pilot vaccination

<table>
<thead>
<tr>
<th>county</th>
<th>2007</th>
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<th>2009</th>
<th>2010</th>
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<tbody>
<tr>
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<td><strong>34</strong></td>
<td><strong>24</strong></td>
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<td>6</td>
<td>5</td>
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<tr>
<td>2.隆安县</td>
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<td>3.横县</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tr>
<tr>
<td>4.邕宁区</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>5.良庆区</td>
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(Data from China CDC)
Major challenges

- Legislation:
- Dog management:
- Compulsory vaccination:
- Reporting and collection of animal rabies cases.
- Control of stray dogs:
Perspective

- Long-term plan:
  The MoA has initiated a long-term (2011-2020) animal rabies control plan, which aims to significantly reduce the incidence of human rabies by implementation of a comprehensive rabies control strategy at animal source. The main goal of this is to achieve a 70% dog vaccination coverage.
Acknowledgement

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