Member experience on prevention and control for Vector Borne Disease [Mongolia/Ulaanbaatar]

ERDENECHIMEG

Researcher, Institute of Veterinary Medicine

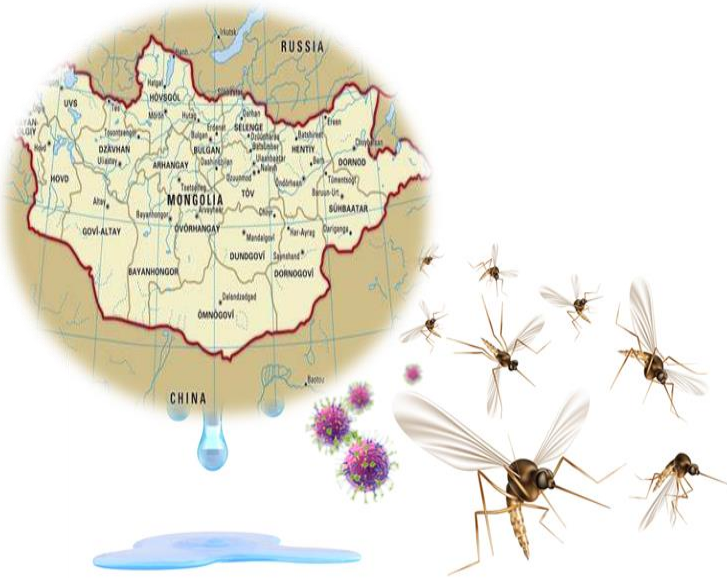
19 – 20 September 2024

Tokyo, Japan

World Organisation for Animal Health
Founded as OIE

Vector Borne Disease situations

- Tick-borne encephalitis (molecular and serologic evidences in humans and animals), 2013-2024
- Japanese encephalitis (serologic evidence in animals), 2009, 2014
- West Nile fever (serologic evidence in animals), 2010
- Crimean-Congo hemorrhagic fever (serologic evidence in humans and animals), 2013-2014
- Equine infectious anemia (serologic evidence in animals), 2017
- Bluetongue (molecular and serologic evidences in animals), 2010, 2015-2017
- Lumpy skin disease (molecular and serologic evidences in cattle), 2021-2022



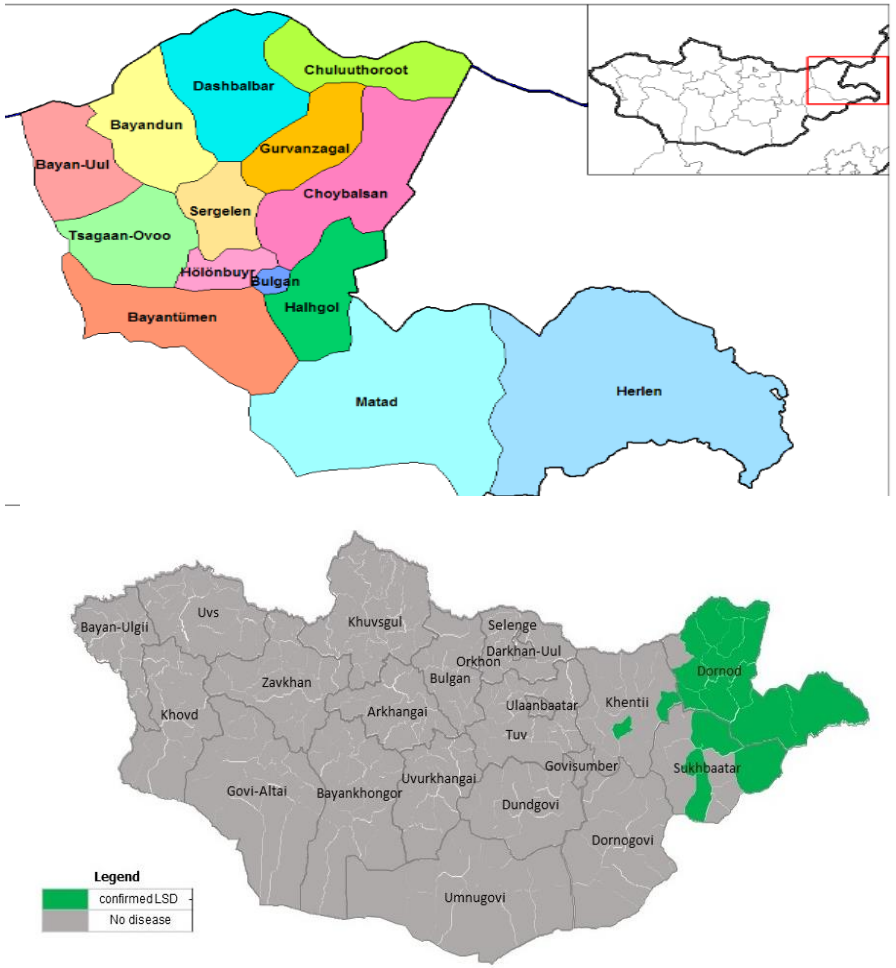
Lumpy skin disease situation

The first case of LSD has been reported in the cattle population in Dornod province in 21 August 2021 (DVs)

SCVL confirmed at 26 August 2021. (08/25 report SCVL).

On September 6th, 2021, the GAVS, Mongolia reported the first LSD outbreak to the OIE (OIE WAHIS).

The outbreaks were reported in 13 soums of Dornod province, 3 soums of Sukhbaatar province, 1 soum of Khentii province (*Source: General Authority for Veterinary Services).*



World Organisation for Animal Health
Founded as OIE

Detection capacity

VIRAL DISEASES				
Disease	**BTV**	**EIA**	**LSD**	**JEV**
Vector	Biting Midges	Biting Flies	Stable Flies Mosquitoes Hard Ticks	Mosquito
Capability	ELISA RT PCR	AGID	PCR, Real-time PCR Sequencing Viral isolation ELISA SNT	ELISA RT PCR
Remarks	Surveillance	Surveillance Local Shipment Disease Investigation	Surveillance Local Shipment Disease Investigation	Surveillance

Prevention and control of Lumpy Skin Disease in cattle 2021-2024 in Mongolia

1. Disease surveillance (passive and active surveillance)

2. Animal quarantine, transport control, slaughter control and veterinary hygiene inspection

3. Apply biosecurity, disinfection and sterilization in animal

4. Outbreak handling; separating of sick animals and slaughter

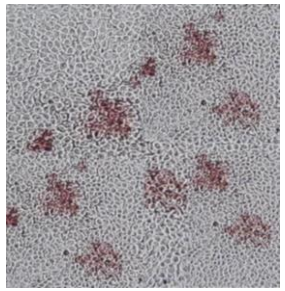
5. Strengthen diagnostic and testing capacity

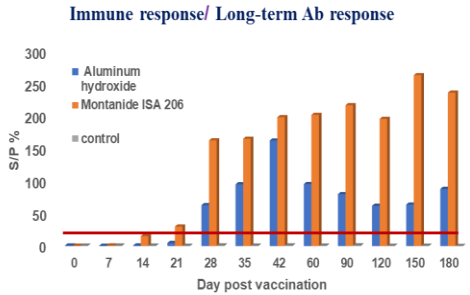
6. Studies on epidemiological characteristics of LSD, research and production of LSD vaccines

7. Vaccination

8. Public awarence of LSD

Animal and vector surveillance





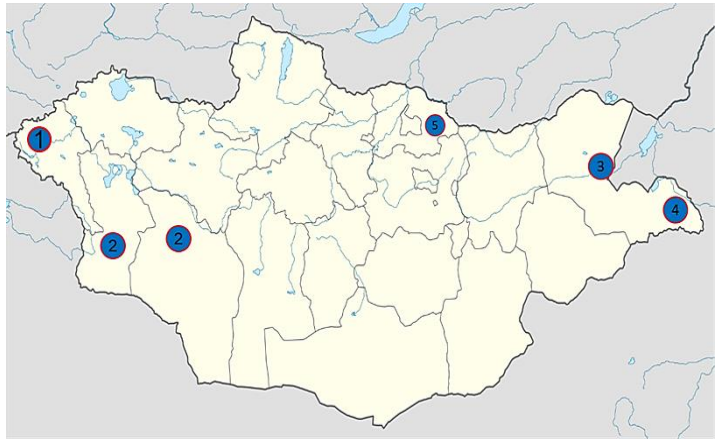
A diagnostic test and an inactivated vaccine were developed

Public awarence of LSD

World Organisation for Animal Health
Founded as OIE

Impact of the actions

Sharing information about animal diseases with herders, risk-based vaccination, controlling animal movement, and raising public awareness are crucial for managing Lumpy skin disease and other disease.



Identified mosquitoes by molecular

Aedes vexans => 3

Culex pipiens pipiens => 3

Anopheles messeae => 3

ongoing…

No mosquito was positive for **Lumpy skin diseases**, Equine infectious anemia, Japanese encephalitis

Challenge and possible solutions

Challenges:

- **Source of Reagents and Controls:**
  - Limited availability of reagents and controls for serological tests.
  - Affects the ability to conduct effective surveillance.
- **Vector Studies and Mapping:**
  - Need for comprehensive studies on vector identification, characterization, and mapping.
  - Capability to perform these studies is currently limited.
- **Training and Protocols:**
  - Lack of established procedures and protocols for vector collection and capture.
  - Inconsistent practices impact data quality.
- **Expertise Development:**
  - Need to build expertise in vector identification, characterization, and control at the research Institute and central Laboratory.
- **Sustainable Surveillance Systems:**
  - Absence of robust systems for ongoing data collection and understanding of disease transmission.

Possible Solutions:

- **Enhance Reagent Access:**
  - Secure reliable sources for reagents and controls.
- **Strengthen Vector Research:**
  - Develop capabilities for vector studies, including identification and mapping.
- **Establish Training Programs:**
  - Implement standardized procedures and protocols for vector collection and capture.
- **Develop National Expertise:**
  - Capacity building for specialized skills at the research Institute and central Laboratory.
- **Implement Sustainable Systems:**
  - Create sustainable surveillance systems for continuous data collection and disease monitoring.

Collaboration with other sectors under One Health approach

1. General Authority for Veterinary Services, Mongolia
2. Local Veterinary Services in Mongolia
3. State Central Veterinary Laboratory, Mongolia
4. Institute of Veterinary Medicine, Mongolia
5. National Center for Zoonotic Diseases, Mongolia

Challenge and possible solutions to strengthen the collaboration

Challenges:

Shortage of specialists in vector-borne diseases and entomologists, leading to undiagnosed mosquito and fly samples.

Limited access to modern instrumentation and chemical reagents, hindering diagnostics.

Potential Solutions:

Capacity Building for Entomologists and Vector-Borne Disease Specialists

Improve access to laboratory equipment and diagnostic tools.

Enhance collaboration between veterinary, human health, and zoonosis sectors through information sharing and joint research.

Thank you

Erdenechimeg

Researcher

Institute of Veterinary Medicine, Mongolia

World Organisation for Animal Health
Founded as OIE

Expectations for the VBDs workshop (Not Included in the Presentation)

Information from Experts:

- Latest diagnostic techniques and technologies for vector-borne diseases.
- Effective vector surveillance and control strategies.
- Case studies on successful vector-borne disease control programs.

Experience from Member Countries/Territories:

- Insights on managing Lumpy Skin Disease, African Horse Sickness, and West Nile Virus.
- Practical experiences and lessons learned from outbreaks and control efforts.