

# THE EPIDEMIOLOGICAL SITUATION OF NATURAL FOCAL ANIMAL DISEASES IN KYRGYZSTAN

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# Introduction

An Assessment of the most characteristic infectious viral and parasitic diseases of domestic (dogs, cats) and wild (rats, marmots, etc.) animals in the Kyrgyz Republic, such as plague, rabies, echinococcosis, alveococcosis remain tense.

Outbreaks of natural focal diseases have social significance and cause significant economic damage to the country. We every year watch a large number of infected humans from animals infections of a viral and parasitic etiology, among which marked not only cases of severe infection, but mortality.

# Fig. 1. Natural foci of plague in republic



## Fig. 2. History of epidemics outbreaks of plague



- **Plague.** Mortality ranges from 30% to 60%.

- In 2013, around the world, it was noted 783 cases, including 126 deaths.

- In Kyrgyzstan, there are 30 thousand m<sup>2</sup> of three natural foci of plague. The sources of the disease - rodents (gray and red marmots, etc.), and vectors - fleas.

- The last major outbreak of the disease occurred in the late 20's and early 40-ies. The XX century, sporadic cases reported in 1965, 1982, 1981. The last case of bubonic plague in the Kyrgyz Republic was registered in August 2013 in Issyk-Kul region, there was held deep dustation of enzootic areas.

- Recent cases of isolation from the cultures of plague carriers and their specific carriers in the enzootic areas of plague reported in 2012, 2014 and the current 2015.



**Fig. 3. Field work in outbreak of plague**





# Surveillance and control

- The necessary examination of animals and fleas involved in the cycle of plague in the region;
- Development of environmental programs aimed at limiting the spread of the disease;
- Active continuous monitoring of the centers of the animals stay will successfully reduce the number of outbreaks of plague disease among the people.



# Rabies

- Rabies is endemic disease in the Central Asian republics (Kyrgyzstan, Kazakhstan, etc.) and CIS countries (Russia, Belarus, Ukraine and others.).

By the WHO estimates each year in worldwide it killed over 50-75 thousand people and more than 1 million. animals.

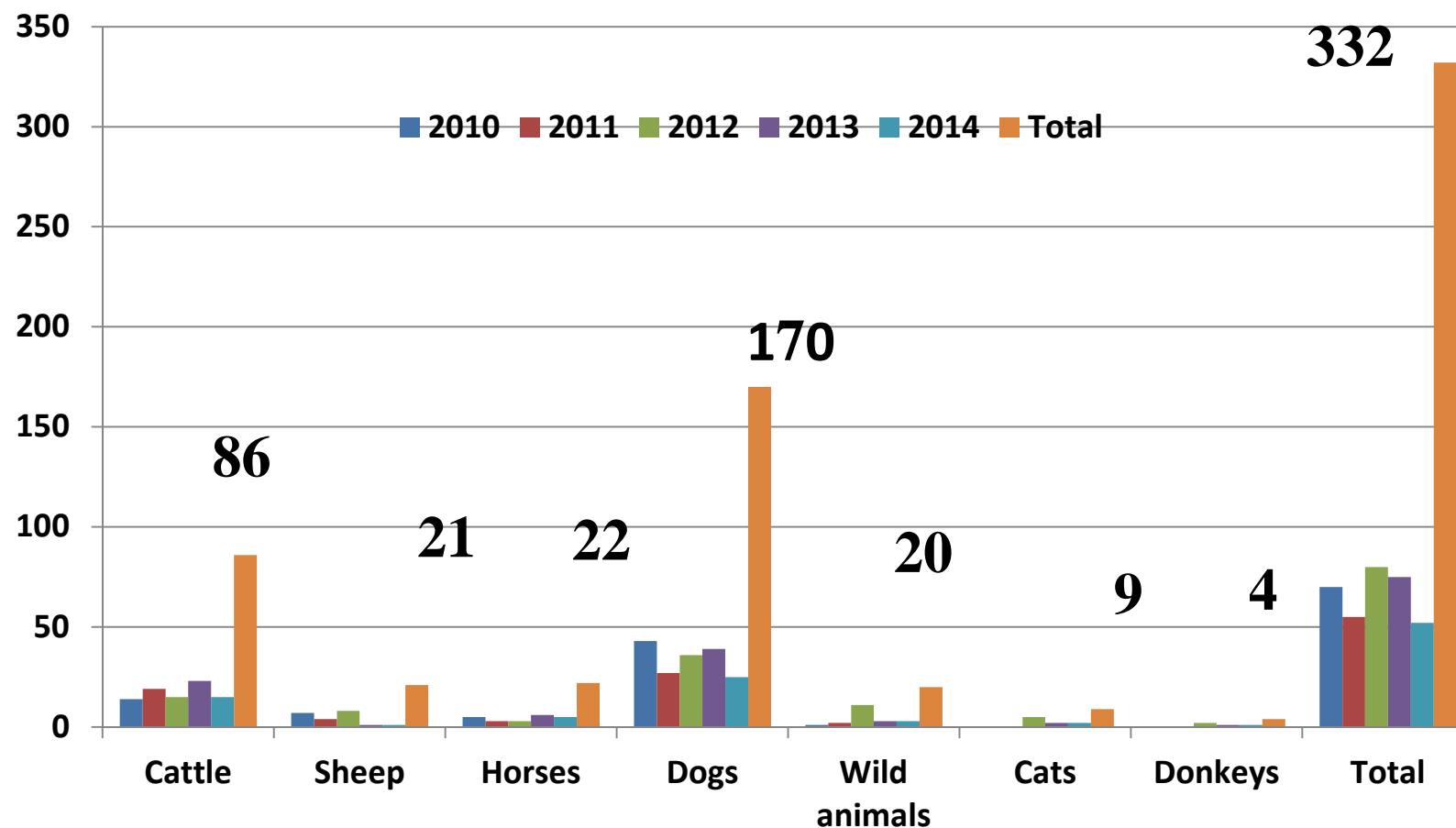
- In Kyrgyzstan, during the period from 2010-2014, it was found 332 cases of rabies among agricultural, domestic and wild animals (Fig. 4, 5).

**Fig. 4 - The prevalence of rabies by unfavourable points, 2010-2014 (heads)**

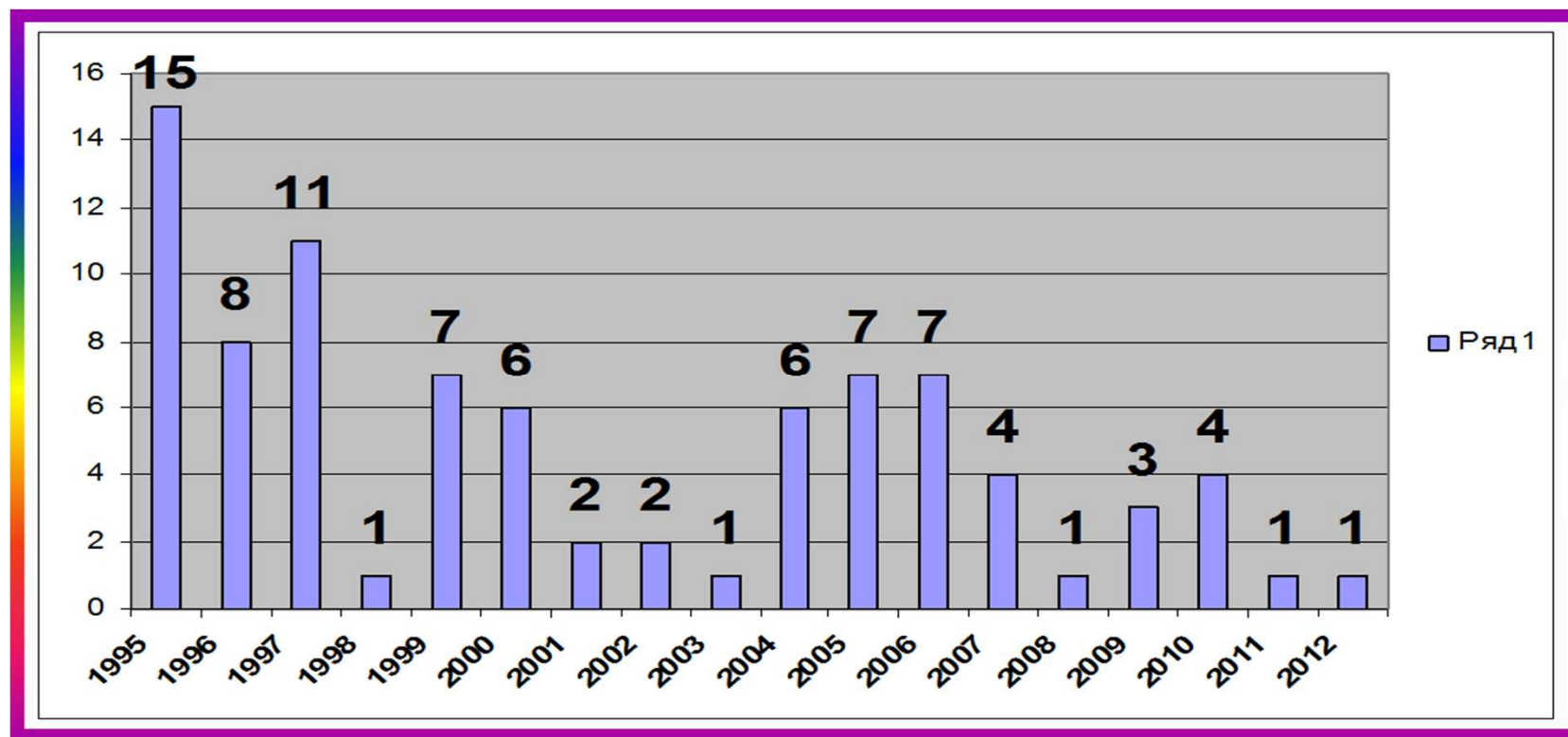




**Fig. 5 - The prevalence of rabies by animal species, 2010-2014 (heads)**



**Fig. 6 - The prevalence of rabies in humans ,  
1995-2012**



- **successful reduction of deaths was including by carrying out veterinary-sanitary prevention (small seminars for children, people, medical and veterinary specialists)**



# International cooperation

- **Project ISTC KR-1389.2**  
from 01.11.2008 till 01.05.2012

**Financing Party:** Canada

**Leading Institute:** KRIV named after A. Duysheev

**Institute-Participants:**

- The Osh regional state veterinary laboratory (Ministry of Agriculture)
- The Republican Centre of quarantine and especially dangerous infections (Ministry of Health)

# Fig. 7. Memo against rabies

## Бешенство: симптомы и переносчики болезни

Бешенство – природно-очаговая вирусная инфекция животных и человека



**Возбудитель** – нейротропный вирус, содержащий рибонуклеиновую кислоту. Может содержаться в слюне, слезах, моче

### Переносчики



лисы (основной резервуар инфекции)  
волки

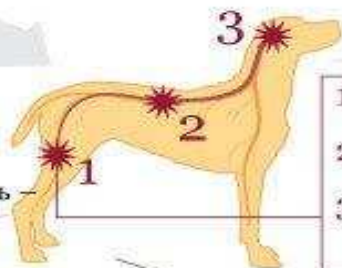


шакалы  
барсуки



еноты  
летучие мыши

**Собака**  
Основная форма болезни – буйная  
Продолжительность – 6-11 суток



- 1 Вирус в организме распространяется по нервным волокнам
- 2 Сначала он попадает в спинной мозг
- 3 Затем вирус проникает в головной мозг, развивая его воспаление

**В начале заболевания** животное прячется, избегает людей, либо ластится, пытается лизнуть

**В середине болезни** животное возбуждено, яростно хватается предметы, стремится сорваться с привязи

**В последней стадии** животное не двигается и погибает в состоянии комы

**Человек**  
Проявления болезни



- 3 Судороги глоточной и дыхательной мускулатуры
- При нарастании возбуждения больные становятся агрессивными, мечутся в постели
- Стадия возбуждения сменяется параличом, который и приводит к смерти

**Гибнут от бешенства**  
(человек в год)



### Что делать при укусе



в течение 10 минут интенсивно промыть место укуса струей мыльной воды



обратиться в ближайший травмпункт, провести курс прививок

### Нельзя



прижигать раны



накладывать швы

# **Echinococcosis. Alveococcosis**

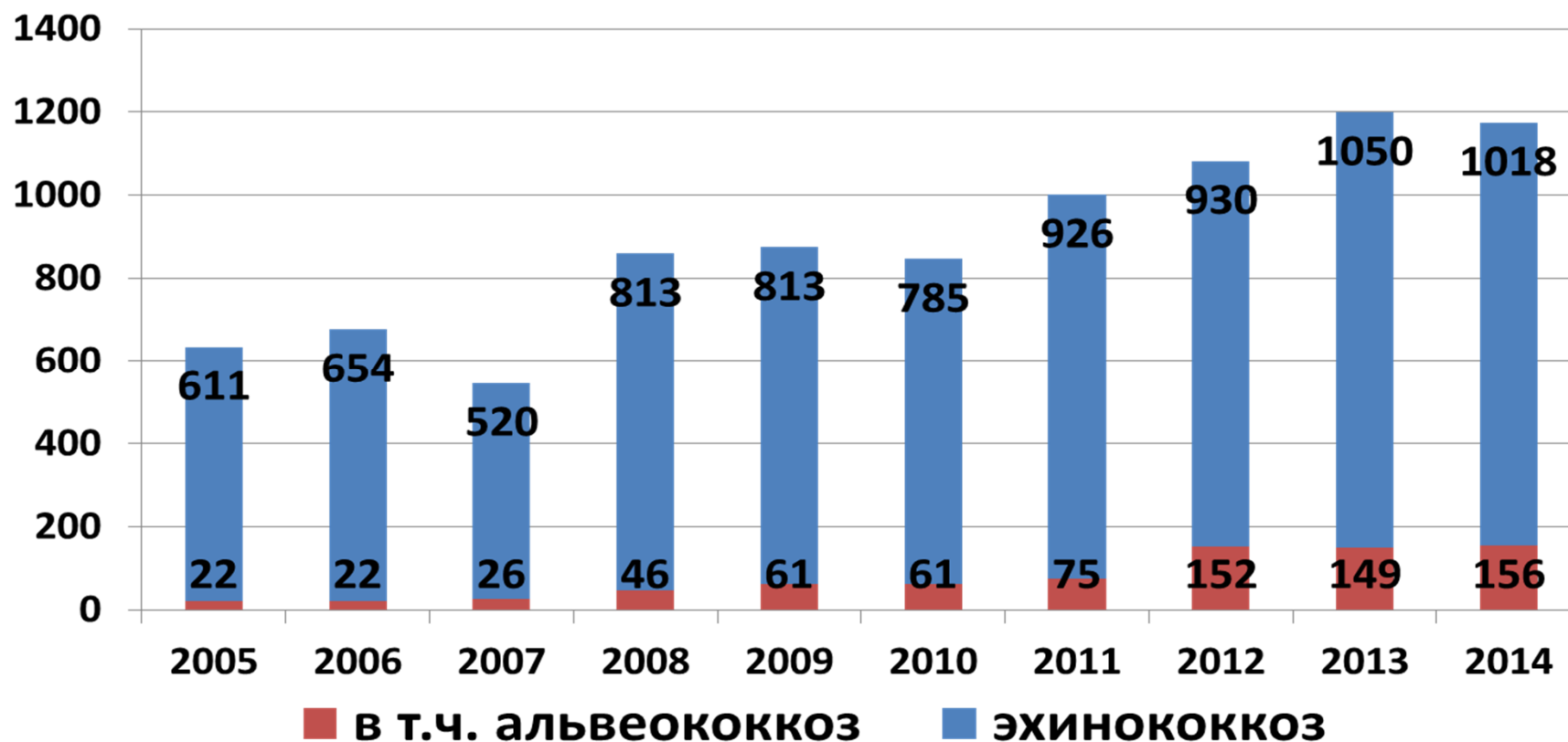
**Echinococcosis.** In Kyrgyzstan, for 10 years (2005-2014) the number of echinococcosis patients increased on 3 times, and in comparison with the Soviet period on 20 times.

Only in **2013**, the incidence of echinococcosis increased on **10.8%**, reaching **1050** cases in absolute terms and **18.4** in intensity.

**Alveococcosis.** Over the past 10 years, observed stable growth of reported cases of infection: the number of cases of infection cases has increased from **2** in 2002 to **156** cases in 10 months in 2014 (Fig. 8).



**Fig. 8 - The number of cases operated people with echinococcosis and alveococcosis on the last 10 years**



# Economic damage

**Echinococcosis.** For 10 years under the surgeon's knife lay about **7518** people, including **1641 children**. Experts estimate the economic impact of human echinococcosis was about **100 million \$**, taking into account the indirect costs, the costs can be estimated at **14 million \$** per year.

**Alveococcosis.** In infested cattle loss of output of meat amount to 3.4%, fat - 19.1%, liver - 48.1% of milk yield - 12%, and for every 100 cows get sick calf is less than 3. Sick echinococcosis sheep lose 160-300 gr wool, 2.2 kg of meat, 200 gr internal fat. Every 100 sick echinococcosis ewes don't give up 7.12 lambs.

# Our goals and tasks

- continue research on high level in collaboration with researches from EU, Eurasian Economic Union, etc.
- integrated surveillance of natural focal diseases;
- strengthening of veterinary-sanitary educational work through the development and production of recommendations, flyers, articles, etc.;
- carry out mini-seminars and workshops in schools, universities, for farmers, veterinary specialists, etc.;
- performance by radio and TV, other media sources about means of the dangers of infectious diseases and their prevention.

# Conclusion

The problem of some natural foci of zoonotic infections in the Kyrgyz Republic is quite acute and requires addressing their epidemiological monitoring, control, prevention, including through conducting veterinary-sanitary educational work.

**In a result of research work all data were used:**

- in the development of strategies for the prevention of rabies, echinococcosis;
- development of production technology of anthelmintic drugs and rabies vaccine based on local strain of the rabies virus "Suzak-2008".

# Thank you for attention!

