

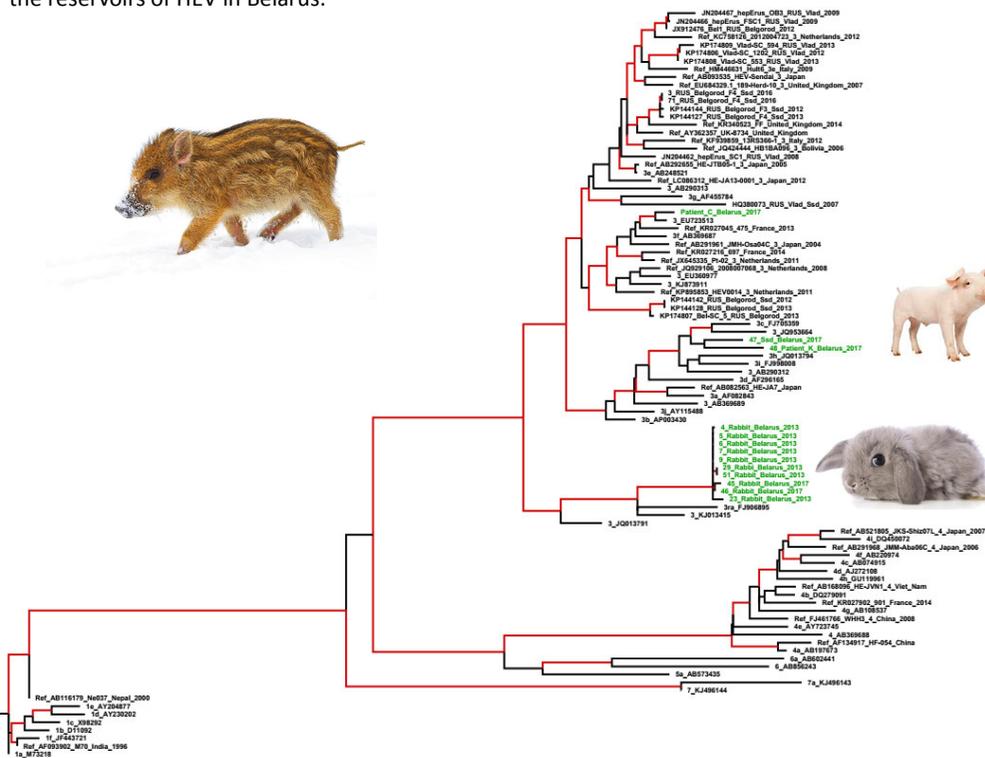
# Animal reservoirs of hepatitis E virus in Belarus

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## Introduction

Hepatitis E virus (HEV) is now considered to zoonotic diseases. In developed countries, where most cases of HEV infection are locally acquired, the importance of animal reservoirs has become clear. Accumulated evidence has suggested a risk of foodborne infection through the consumption of undercooked, contaminated animal meat. The prevalence of HEV in Belarus among animals is still unknown. The aims of this study were to identify HEV infection in animal species and to determine the reservoirs of HEV in Belarus.



## Methods

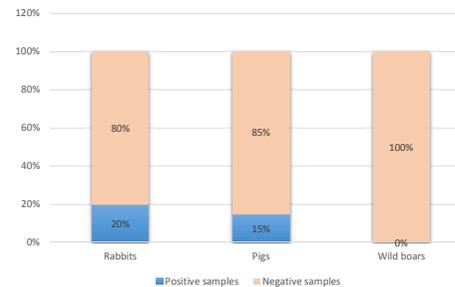
Serum, bile and fecal samples of rabbits, domestic pigs and wild boars were collected during 2014-2017 from different areas of Belarus. For detection of HEV RNA in bile and fecal samples we used adapted nested reverse transcription PCR. Anti-HEV IgG were detected by commercial ELISA kit. Nucleotide sequences were assembled and analyzed using MEGA 5.0

## Results

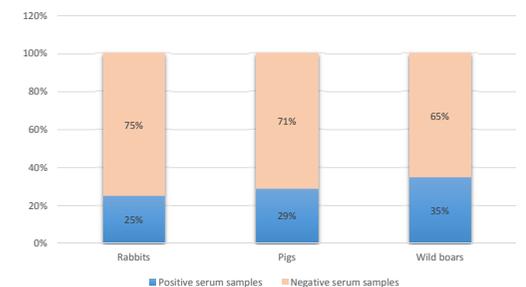
During the study we have tested 150 fecal samples of rabbits, 40 fecal samples of domestic pigs, 24 fecal samples and 5 bile samples of wild boars for HEV RNA. HEV RNA was detected in 30 samples (20%) of rabbits and in 6 samples (15%) of pigs. HEV RNA was not detected in fecal samples and bile of wild boars.

The positive rate for HEV-specific IgG was 25% (22/88) in rabbits, 29% (303/1047) in domestic pigs and 35.23% (31/88) in wild boars. Phylogenetic analysis showed that the isolates of HEV from Belarusian rabbits form a single cluster with isolates obtained from rabbits in China, as well as isolates from rabbits in Moscow region (Russia) with high similarity of the nucleotide sequence (86%). The allocated cluster is independent, close, but not related to the HEV3. The swine HEV isolate had closest nucleotide sequence identity to genotype 3c isolates from swine in France and wild boar in Germany.

Detection of HEV RNA in animals



Seroprevalence of HEV in animals



## Conclusions

In this research we have established high distribution of HEV markers in pigs, rabbits and wild boars. A small number of examined specimens and age can explain the absence of HEV RNA in wild boar samples. We indicated that rabbits, domestic pigs and wild boars are reservoirs of HEV in Belarus.

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