



Aujeszky virus circulation in wild boar (*Sus scrofa*) in Southern Belgium: active surveillance 2023.

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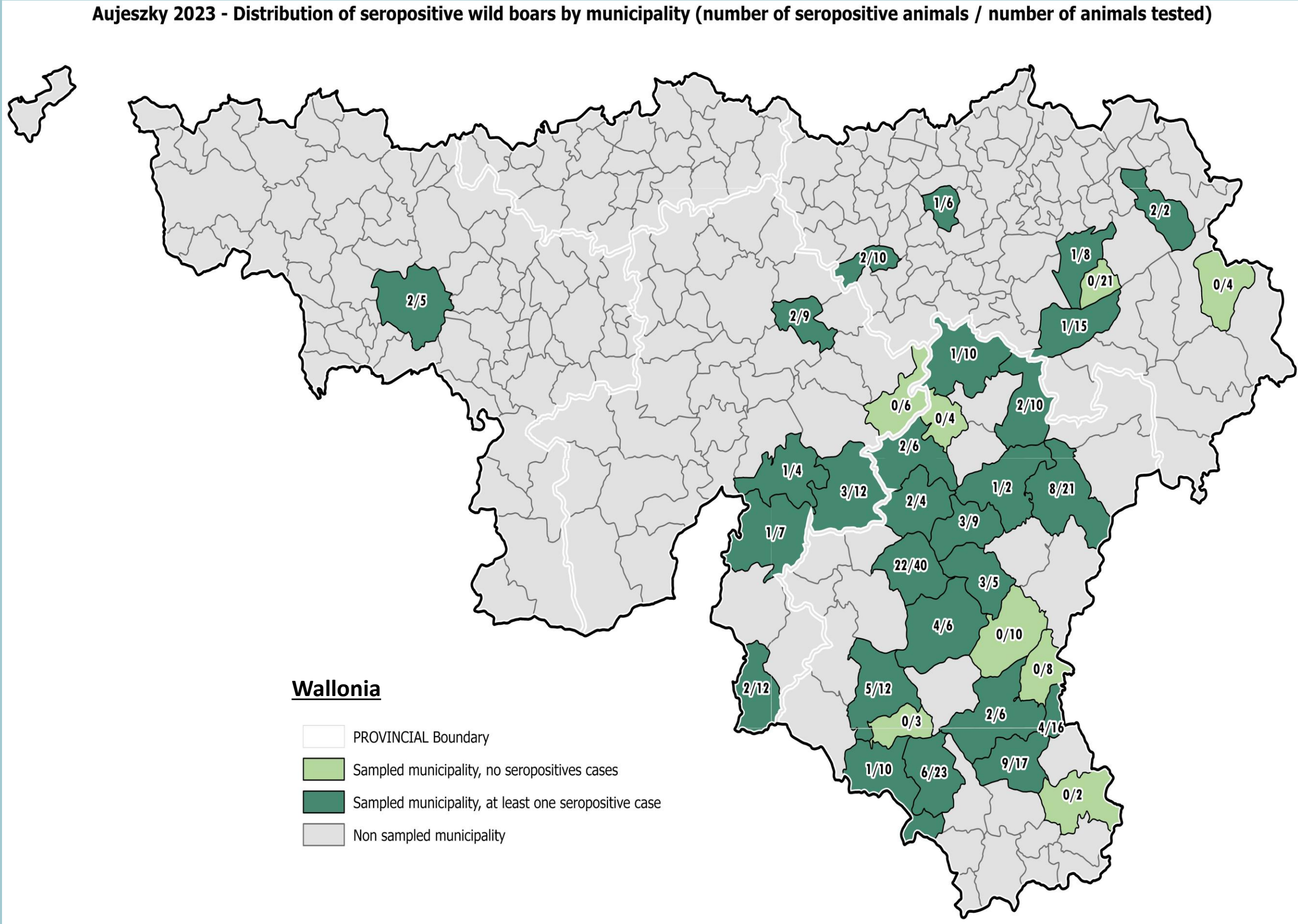


Introduction

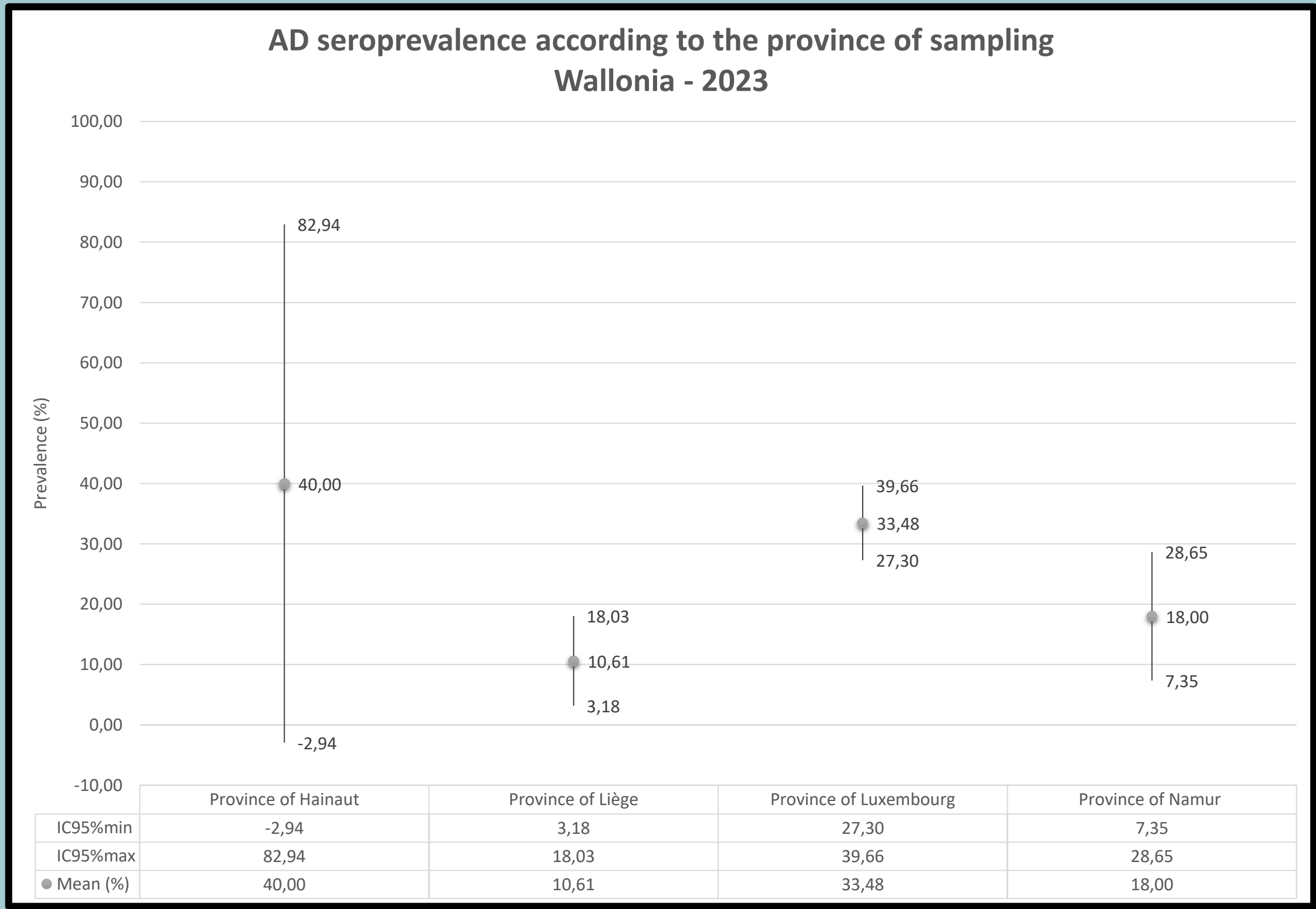
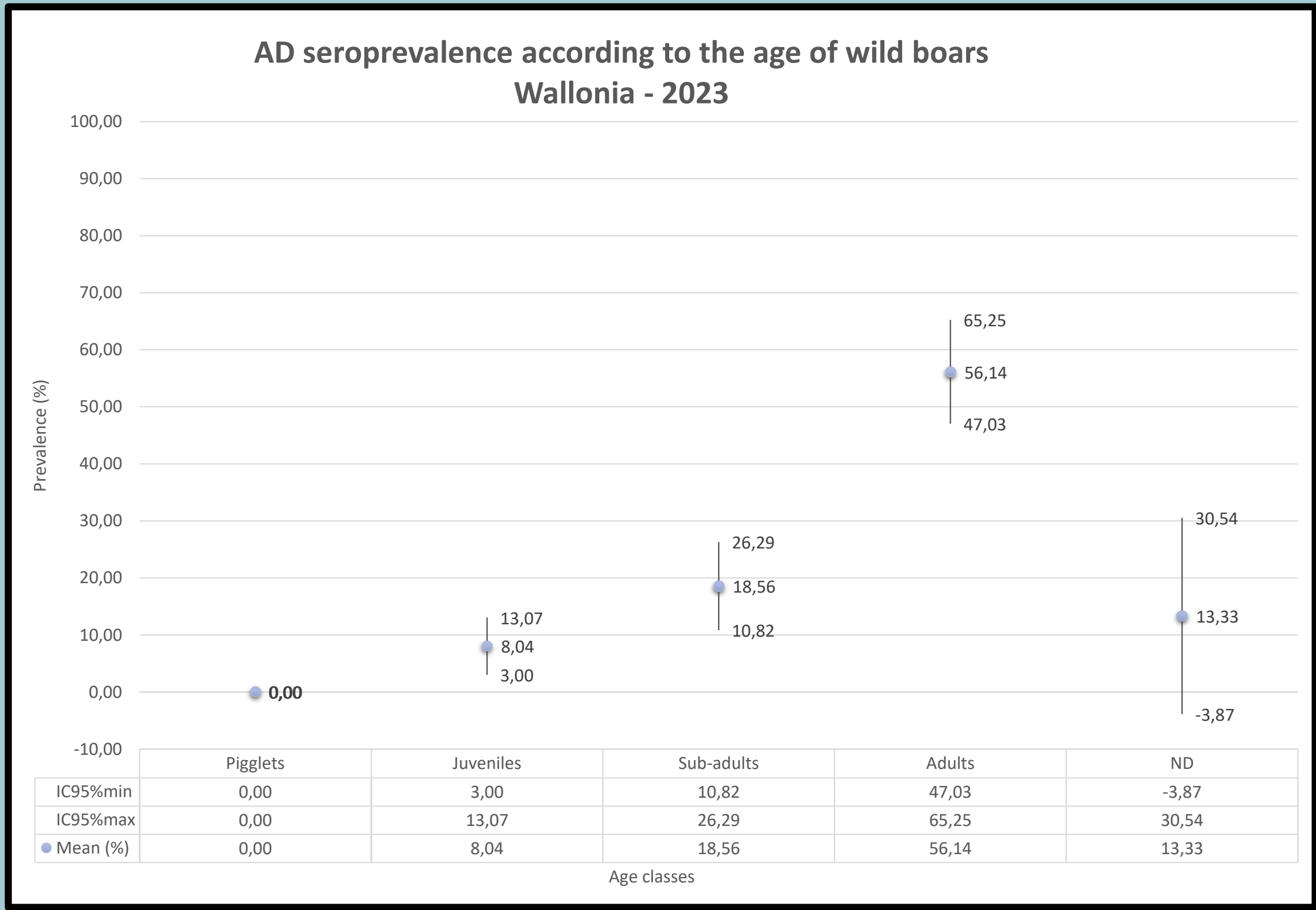
Aujeszky's disease (AD) is a viral disease caused by a herpesvirus (Pseudorabies, Suid herpesvirus 1, Aujeszky Disease Virus, ADV) for which domestic swine and wild boar are the reservoir hosts. In accidental hosts, such as dogs, the virus causes a fatal encephalitis. The inter-species transmission from wild boar represents a significant threat to the pig sector, mainly to outdoor pig farming. Belgium obtained the Aujeszky's free status in 2011 and the vaccination doesn't take place any more in farms. However, the virus circulated within the wild boar population at a rate of 30.65% (IC 95%: 26.87 – 34.43) among boars collected in 2017 in Wallonia. In Germany, between 2010 and 2015, the seroprevalence was 12.09% (Denzin *et al.*, 2020) among a total of 108,748 sera from wild boars. In Southeastern France, the seroprevalence was estimated at 30.33% (Laidoudi *et al.*, 2022). The aim of this study is to provide an update on the epidemiology of AD in wild boar in Wallonia.

Materials and methods

The surveillance program covered 4 of the 5 provinces of Wallonia, and the blood samples were collected by the ULiège team during the hunting season, from October to December 2023. Out of 369 animals sampled, 345 blood samples were tested for the detection of anti-ADV antibodies. The animals were classified by age category based on phenotype and dentition: piglets: 0 to 6 months (n=7), juveniles: 6 to 12 months (n=112), sub-adults: 12 to 24 months (n=97), adults: >24 months (n=114) and not determined (ND) (n=15). The quantity and quality criteria of the sera (percentage of hemolysis) were noted. A competitive ELISA test (ELISA Ac – IDEXX PRV/ADV gB Ab – 99-09732) targeting antibodies against the virus's glycoprotein B was used, and the samples were analyzed in duplicate. The intrinsic values of the kit were provided by the manufacturer (Se 100% and Sp 99.5%). A positive control serum was systematically included for each ELISA plate. To analyze the factors influencing the Aujeszky ELISA Ac results, a generalized linear model (GLM) binomial logistic regression was used. The dependent variable is the Aujeszky ELISA Ac result, while the explanatory variables are sex, age, and province, all categorical. The model is specified as follows: Aujeszky Serology ~ Sex + Age + Province.



Results



The positive serology results are distributed by age category as followed: piglets: n=0/7, juveniles: n=9/112, sub-adults: n=18/97, adults: n=64/114 and not determined (ND) n=2/15. Results show that there is no effect of the sex on AD seroprevalence (M/F OR: 0,58 95%CI: 0,33-1,33 p-value: 0,065). However, age has a significant effect, the AD seroprevalence being significantly higher in adults than in subadults and juveniles. Geographical zone affects also AD seroprevalence with higher seroprevalences in province of Luxembourg compared to province of Liege (Lux/Liege OR: 4,27 95%CI: 1,25-14,6 p-value: 0,013*). More data are needed to refine geographical effect.

Conclusion

Since the African swine fever crisis (2018-2020), data on the circulation of ADV in wild populations were missing. Therefore, this screening was relevant to assess trends since 2017. Current results show that the overall seroprevalence is 26.96% (95% CI: 22.27 – 31.64) in Wallonia. This is in the same range than data gathered in 2017 and consistent with an endemic circulation of ADV in the wild boar population living in Southern Belgium. A large-scale study in 2024 will be carried out to refine any differences between provinces. In any case, the risk of reintroduction of ADV in the domestic pig population is non negligible, especially in outdoor pig farming.

