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Varying circulation levels of avian influenza and Newcastle disease viruses in domestic chickens and ducks of the Mopti and Sikasso regions, Mali, in 2008

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Two areas of Mali are particularly considered at risk for H5N1 highly pathogenic avian influenza (HPAI) outbreaks, the Mopti region and the Sikasso region, because they are located respectively in the inner Niger delta, which attracts millions of migrating wild birds, and near the border with Burkina Faso and Ivory Coast, two countries where H5N1 HPAI outbreaks were reported.

The objective of this study was to investigate the prevalence of avian influenza (AI) and Newcastle disease (ND) viruses in two species (chickens and ducks) in the Mopti and Sikasso regions at two different periods of the year, during the cool dry season and during the hot dry season.

In both Mopti and Sikasso regions, a cross-sectional survey was conducted in January-February (cool dry season) in a convenience sample of villages chosen because they included both chickens and ducks. Another survey was conducted in May-June 2008 (hot dry season) in the same villages. During each survey, biological samples (tracheal swabs, cloacal swabs and sera) were collected from 125 chickens and 125 ducks, hence representing a total number of 1000 birds. Swab samples were tested by RRT-PCR for the detection of AI and ND virus. Sera were tested with commercial ELISA kits: the FluA kit for the detection of antibodies against type A AI (IdVET, Montpellier, France) and the LSIVET AVI NDV and KIT NDV kits for the detection of antibodies against NDV (LSI, Lissieu, France).

Preliminary results for 630 swab samples collected during the cool season found that no bird tested positive for AI RRT-PCR, and that the proportion of birds positive for ND RRT-PCR was respectively 0% (ducks) and 1.6% (chickens) in Mopti, and 0% (ducks) and 3.2% (chickens) in Sikasso. Regarding ELISA type A AI, the proportion of positive birds did not differ significantly between the cool (3.0%) and the hot (4.4%) dry seasons but it differed significantly between Mopti (4.9%) and Sikasso (2.5%) ($p=0.046$) and between ducks (2.1%) and chickens (5.2%) ($p=0.011$). These preliminary results indicate that the circulation level of both AI and ND viruses is very low in the regions studied. Serological results seem to indicate that there is some variation in exposure to AI viruses among species and among regions. This variation will be further investigated through the pending results of RRT-PCR for swab samples collected during the hot season and the results of ELISA test for ND.

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