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Spatial analysis of Classical Swine Fever outbreaks in Pinar del Río province, Cuba.

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Purpose:

Classical Swine Fever (CSF) can cause high morbidity and mortality in susceptible hosts, depending on the virus strain, immune status of the herd and age of the pigs. It is one of the most highly contagious animal diseases and it is considered a devastating disease for the pig industry throughout the world, concerning both economic and sanitary issues. In Cuba, CSF is an endemic disease and it is under control through vaccination programs among other sanitary measures. The Cuban Veterinary Medicine Institute (IMV) has planned a campaign for CSF eradication by zones. Therefore, identifying high risk areas for outbreak occurrences should be very useful for implementing a most efficient control measures as well as understanding CSF distribution in specific regions. The aim of this study was to identify high risk areas for CSF outbreak occurrences in Pinar del Río province, which is one of the provinces selected for starting the eradication campaign.

Methods:

Information from the provincial census and records of CSF outbreaks in the province during four-year-period (2009 - 2012) were recorded. A risk map was created using the Indicator Kriging method. Scan statistic (SaTScan 9.3) method was used for detecting clusters using purely spatial analysis and the probabilistic Poisson model. Maps were made using ArcGIS 9.3.1.

Results:

A high rate cluster (RR: 3.058; $p < 0.039$) was detected, high risk areas involve municipalities from south and north coasts but relatively near to the border of Artemisa province. This province has the worst epidemiological situation if it is compared to our scenario. CSF spread by illegal pig movements between private producers could play an important role, because the introduction of pigs from other provinces was forbidden following the strategy implemented by the Veterinary Medicine Institute (IMV).

Conclusions:

High risk areas and clusters were identified. Those results can contribute to improve CSF control program in this province selected.

Relevance:

A more extensive study should be made at national level; it will support the strategies in the control and eradication campaign against CSF in Cuba.