

Emerging Diseases, Outbreaks & Case Studies &

16th Annual Meeting on **Influenza** March 28-29, 2018 | Orlando, USA

A matched case-control study of risk factors for equine influenza epidemic 2015-2016 in equine in Khyber Pakhtunkhwa, Pakistan

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Equine influenza in non-vaccinated equine population causes disruption and economic losses. To identify the risk factors associated with the equine influenza epidemics in equids in Pakistan, a 1:1 matched case control study was conducted during 2015-2016, including laboratory confirmed 197 positive cases and negative controls, matched on the basis of geography, time of sampling, specie and age. A piloted questionnaire was used to obtain the information about the risk factors associated with the occurrence of equine influenza in face to face interviews. Conditional logistic regression was performed to analyze the data. A total of 16 out of 23 variables were found associated as risk factors on univariate conditional logistic regression. Multivariate conditional logistic-regression model was also performed. The key potential risk factors identified in this model were

local equine density and manure removal frequency. Due to lack of vaccination against equine influenza; the spread of disease is favored by high local equine density. Investigating the index-case it was recorded that infected cases were imported from Afghanistan. Most of these risk factors related to biosecurity and management were due to the low awareness level regarding equine influenza amongst the respondents. These findings are in line with the results of many other studies identifying similar risk factors for equine influenza infection in various countries. Improving protective and controlling the risk factors identified in the present study could reduce the spread and future outbreaks of equine influenza in Pakistan.

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