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Atypical cases of equine Glanders could form a risk for re-emerging Glanders disease worldwide

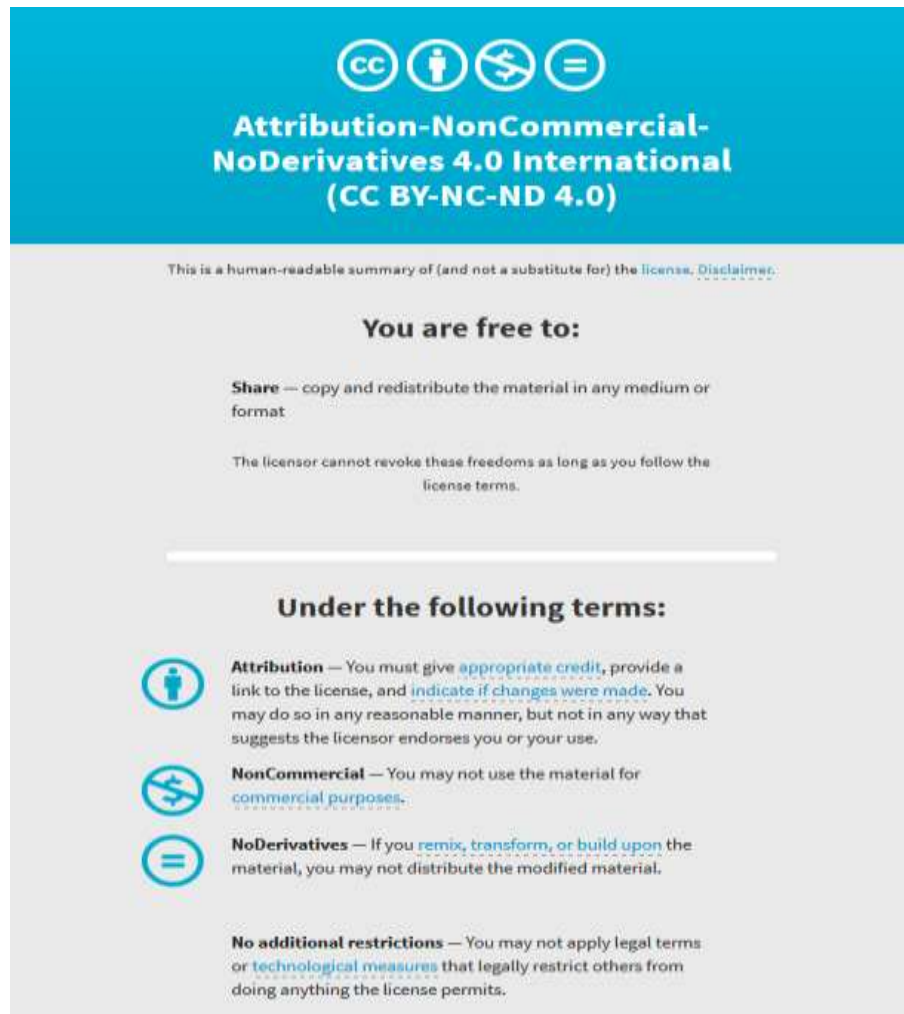
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horses” and in most cases of *Babesia caballi*, parasitemia is very low and determination on stained blood smears is usually a difficult task.

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Atypical cases of equine Glanders could form a risk for re-emerging Glanders disease worldwide

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Glanders disease (GD) is a notifiable contagious zoonotic disease caused by *Burkholderia mallei*, a host-adapted intracellular bacterium mainly affecting equids in endemic areas (Africa, Middle East and South America). Human infections may be fatal. In horses, typical clinical signs are well described; the cutaneous form, the (acute) nasal form, and the pulmonary form. Recently, reports of GD cases in Germany highlighted the fact that this disease can re-emerge in different parts of the world. Transmission occurs directly or indirectly through contact with skin exudates and respiratory secretions. Secretions may contain large numbers of organisms that may contaminate shared water and feeding places. Carrier horses are an important reservoir of GD and can periodically shed bacteria from the respiratory tract and, if not identified as infected, may prove important in the transmission of the disease. Hence, GD can be introduced into a country or region where this disease has been extinct for decades. The aim of this study is to describe cases of atypical GD, to create awareness of GD disease and to minimize the risk of (re)-introduction of GD into susceptible horse populations. In 2009, several outbreaks of GD had been identified in Kuwait (horse population estimated 4200 horses). During this time, 22 horses were admitted to two Equine hospitals for general clinical exam and, while not showing typical signs of GD, samples were routinely collected and tested positive for GD. Serological testing was performed by CFT according to OIE requirements (sensitivity 97%, specificity 90%) and 19 cases were confirmed positive by cELISA (sensitivity 100%). The main clinical signs of the 22 positive cases included mild fever (3), mild nasal discharge (6), swollen distal limb (2), skin ulceration (2), or testing for export purposes (8). All cases except 5 cases, may be classified as carriers. For the purpose of this study, case details of 5 cases are discussed: (1), a mild chronic cough (since importation) admitted for endoscopy; (2), reduced appetite, for gastroscopy; (3), a mild swollen hind limb; (4), mild fever for 3 weeks and (5), a firm painful swelling at the mid-area of the neck and a non-specific histopathology result. Significant disease was noticed at some point in time in all 5 atypical cases. It was concluded that GD might take months to years to become recognizable, especially when antimicrobials are administered simultaneously. Other risk factors are varying virulence, low-sensitivity serologic assays caused by the large varying incubation period, low prevalence, fluctuating antibody titres and the fact that veterinarians in GD free countries are not familiar with GD. Therefore, current increased worldwide travelling of horses as well as import and temporary import of horses originating from OIE B listed countries for breeding, training and competition, may carry a potential risk of re-emerging Glanders disease into a region and secure importation rules are recommended.

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Spatial distribution of *Burkholderia mallei* in Punjab, Pakistan

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A little is known about the geo-spatial distribution of *Burkholderia mallei* in Punjab, Pakistan. *B. mallei* is a zoonotic pathogen, causes glanders in equids. A study was conducted to determine the geo-spatial distribution of *B. mallei* in soil samples collected from Punjab province of Pakistan. A total of 2,280 soil samples representing 456 villages of eight districts of the Punjab province were examined using real time PCR-based assay. It was observed that 11 (0.48%) of 2,280 samples were positive for *B. mallei* distributed in varied locations of Punjab. The samples collected from Sheikhpura district showed higher prevalence (2.37%) followed by Chakwal district (2.10%). None of the soil samples from Gujranwala, Sahiwal, DG Khan, Attock, Faisalabad and Sargodha were found positive for *B. mallei* (Fig. 1). The analysis of risk factors including distance from main road 0.4101 (0.1197 - 1.4048), distance from canal / stream 1.4652 (0.4277 - 5.0191), distance from animal markets 1.4711(0.3169 - 6.8288), human density 2.2889 (0.4933 - 10.6200) and animal interaction 0.8717 (0.2653 - 2.8643) showed no association with presence of *B. mallei* in the soil samples. The findings of the study suggest that RT-PCR assay can detect *B. mallei* in soil samples collected from Punjab province. The observations made in this study can be used to develop hypothesis for a more rigorous analytical epidemiological study to understand the role of biological reservoirs of *B. mallei* and its occurrence in soil samples.

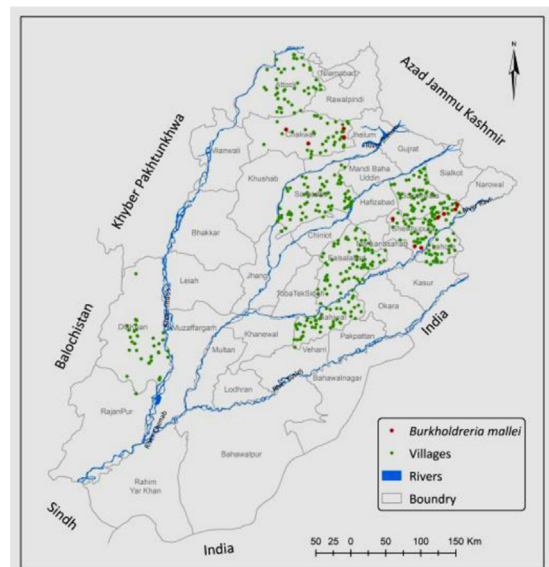


Figure 1. Geospatial distribution of *Burkholderia mallei* DNA in soil samples collected from eight districts of Punjab, Pakistan.