

A better leptospirosis diagnosis is possible



<https://eqrcode.co/a/uz80Tc>

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The current millennium has forced the concentration of resources for the diagnosis, control and treatment of a series of diseases of viral etiology such as Zika, Chikungunya and Dengue. The latter, due to its clinical manifestations, has points of contact with leptospirosis, which is why it is necessary to discard it in the differential diagnosis¹. Without minimizing impact on the human health of viruses such as those mentioned above, leptospirosis is one of the most widespread zoonoses; 1.03 million severe cases are reported in humans each year, a number which is lower than the real cases².

The disease in Cuba ranks among the 35 leading causes of death and has an endemic-epidemic manifestation, with variable epidemiological characteristics. The main reservoirs of the agent include rats, pigs, dogs, and cattle³, but there is no statistical evidence to validate these findings².

Recently, the role of domestic animals as reservoirs of this serious spirochete has been researched in Camagüey province. Cattle, pigs, dogs, and horses were the predominant species, with no statistical differences among them, but they did with sheep and goats, which played a minor role in this respect; also being the least studied^{4,5}. Subsequently, in another study over a decade, it was shown that the ratio of swine reactors/human reactors ranged from three to four. This highly significant correlation constituted an epidemiological alert⁶, given the high number of those animals in the urban and peri-urban areas of the city.

There are epidemiological risks generated by pig farming, particularly backyard pig farming⁵; the same risks can also be found in horse farming. In Camagüey province, there are 84,314 horses, from which 70,714 belong to the private sector and are used for public transportation in urban and surrounding areas. Once they have completed their workday, most of them are crammed together with pigs, dogs, etc., as well as mice, in places that do not meet the required conditions. The risk of being infected with leptospirosis is high⁷. However, the equine species do not appear explicitly in the official MINSAP surveys for leptospirosis research, because they are not considered reservoirs of the entity under study; which is an important element in this research⁴.

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¹Mattar S, Tique V, Miranda J, Montes E, Garzon D. Undifferentiated tropical febrile illness in Cordoba, Colombia: Not everything is dengue. *J Infect Public Health*. 2017;10:507-512.

²Barreto AG, Rodríguez TH, García CT, Vázquez MR. Reservorios de leptospirosis en Camagüey, dos resultados, una misma base de datos. *MEDISAN*. 2017;21(10):3020-3026.

³Suárez CAM, Otero MJM, Cruillas MS, Otero SM. Prevención de leptospirosis humana en la comunidad. *Rev Cubana Med Mil*. 2015; 44(1) Disponible en: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0138-65572015000100010

⁴Rodríguez TH, Barreto AG, García CT, Vázquez MR. Animales domésticos como reservorios de la Leptospirosis en Camagüey; papel de la especie equina. *REDVET. Revista electrónica de Veterinaria*. 2017; 18 (4). Disponible en <http://www.veterinaria.org/revistas/redvet/n040417.html>

⁵Rodríguez TH, Barreto AG, García CT, Vázquez MR. Animales domésticos como reservorios de la Leptospirosis en Camagüey; papel de los cerdos. *Rev Prod Anim*. 2017;29 (3):12-15.

⁶Barreto G, Rodríguez H. Comportamiento de la leptospirosis en reactores positivos porcinos y humanos durante un decenio en Camagüey. *Comunicación corta. Rev Salud Anim*. 2020; 42 (2): E-ISSN: 2224-4700.

The diagnosis of reactors to *Leptospira* spp. is performed by indirect hemagglutination tests⁸ at the Provincial Centers of Hygiene, Epidemiology and Microbiology (CPHEM). This is a simple and rapid modality for the detection of *Leptospira* spp. but not for the serovars involved. On the other hand, the homologous Animal Health Laboratories (LPSA) determine the reactors to this entity by microagglutination test (*Microagglutination Test* -MAT), a more complex technique that allows the identification of serovars. This apparent advantage is biased by the criteria for the inclusion of the antigens in the batteries used. The selection corresponds to the criteria established in July 1984; representing that time and the events of decades before, not the present time⁹.

During the last 34 years, other serovars, not present in this selection, have prevailed in cattle, dogs, pigs, horses, and sheep/goats, which become infected or remain as reservoirs^{4,5,8}. However the serological tests performed on these domestic animals, as well as on the personnel associated with these species, serovars Hardjo, Bratislava, Sejroe, and Grippotyphosa, are not taken into account. Hardjo, Wolffi, Grippotyphosa, Copenhageni, Australis, and Bratislava are absent in the cattle and sheep/goat research⁸. Given the lack of more current diagnostic technologies, it is convenient to join efforts between CPHEM and LPSA with the "One Health" approach to jointly determine the type of serovar by MAT, which will contribute to a more accurate epidemiological control of this zoonosis in the country, thus diagnosis can be at the same level as the therapy¹⁰.

⁷Rodríguez Torrens, H., Barreto Argilagos, G., Vázquez Montes de Oca, R., García Casas, T. Behavior of Leptospirosis According to Equine and Human Positive Reactors during a Decennium Previous COVID-19. Archives of Veterinary and Animal Sciences. 2021; 3(1). <https://escientificpublishers.com/behavior-of-leptospirosis-according-to-equine-and-human-positive-reactors-during-a-decennium-previous-covid-19-AVAS-03-0022>

⁸Instituto de Medicina Tropical Pedro Kouri. IPK. Leptospirosis. Técnica de hemoaglutinación indirecta. La Habana. 2008, pp. 6.

⁹Barreto Argilagos G, Rodríguez Torrens H, García Casas T, Vázquez Montes de Oca R. Sugerencias para un diagnóstico de la Leptospirosis más actual (Nota técnica). Rev. Prod. Anim. 2017; 29 (3): 16-18.

¹⁰WORLD HEALTH ORGANIZATION. WHO. Manual for Investigations of Acute Enteric Infections. Copenhagen, Denmark. WHO. 1983.

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