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Panjabi G.R., Joseph G., Saravu K.

Leptospirosis is associated with severity, increased resource utilization, and mortality among acute febrile illnesses from Karnataka, Southwestern India

(2026) Annals of Medicine, 58 (1), art. no. 2687164

DOI: 10.1080/07853890.2026.2687164

ABSTRACT: Introduction: Acute febrile illness (AFI) is prevalent in tropical regions, with varying etiologies across South Asia. Limited data exists regarding its epidemiology. We aimed to determine the etiology, severity, organ dysfunction, and fatality rate of AFI. Materials and Methods: This prospective cross-sectional study was conducted at a tertiary care hospital in Southwestern India from September 2016 to August 2018. Hospitalized adults aged >18 years with fever (3–14 days) and no infection foci were included. Patients with co-infections, immunocompromised status, chronic kidney disease, chronic obstructive pulmonary disease, or chronic liver disease were excluded. Severity was assessed using Sequential Organ Failure Assessment (SOFA) score (≥ 2 indicating severe illness). Results: Among 314 patients, 66.8% were male. Etiologies included undifferentiated fever (38.5%), dengue (33.1%), scrub typhus (10.2%), leptospirosis (7.6%), malaria (5.1%), and alternate diagnoses (6.4%), with seasonal peaks during monsoon (June to October). Severe illness (SOFA ≥ 2) was noted in 62.4% of cases. Fatality was 3.2%, with 60% due to undifferentiated fever and 40% due to leptospirosis-associated multi-organ dysfunction. Conclusion: In this study of acute febrile illness (AFI), at a tertiary care hospital in Manipal, Karnataka, India, etiologies were dengue, scrub typhus, leptospirosis, and malaria. Among these, leptospirosis was associated with the highest median SOFA score, severe hepatorenal and cardiopulmonary dysfunction, required intensive support (inotropes, mechanical ventilation, and hemodialysis), and had the highest fatality rate. Limitations include serological diagnosis of some cases of AFI, lack of convalescent serology in undifferentiated cases, and potential referral bias inherent to a tertiary care hospital.

LANGUAGE OF ORIGINAL DOCUMENT: English

Pinto T., Shah A.K., Chavan Y.B., Krishna L., Supriya A.S.

Environmental and behavioral determinants of transmission of leptospirosis during the nonrainy season in a Metro City in India

(2026) Indian Journal of Public Health, 70 (2), pp. 251 - 254

DOI: 10.4103/ijph.ijph_919_24

ABSTRACT: Leptospirosis, a bacterial zoonosis predominantly reported post floods, has recently been increasingly reported during the nonrainy seasons. We studied 159 leptospirosis cases reported between January and May and identified environmental and behavioral factors. Most cases resided in tenement buildings (52.8%) with pooling of water around community taps, use of common bathrooms along with the presence of rodents, and solid waste dumps. Regardless of the season, water plays a crucial role in the transmission of leptospirosis. Rodent control measures need to be strengthened along with the management of water collection and solid waste management. Clinicians must maintain a high index of suspicion for leptospirosis year-round.

LANGUAGE OF ORIGINAL DOCUMENT: English

Dieterman E., van Den Wollenberg L., Meijer M., Hoekstra G., Kannekens-Jager M.

An unexpected cause of abortion: leptospirosis in a Dutch broodmare

(2026) Tijdschrift voor Diergeneeskunde, 151 (6), pp. 40 - 43

LANGUAGE OF ORIGINAL DOCUMENT: Dutch

Sanchez-Rojas I.C., Solarte-Jimenez C.L., Pabón-Cadena N.A., Rodriguez-Cardona A., Caicedo-Triana D., Bravo-Muñoz L.C., López-Delgado D.S., Solarte-Portilla M.A., Bonilla-Aldana J.L., Bonilla-Aldana D.K., Rodriguez-Morales A.J.

Yellow fever mimicking dengue and leptospirosis in Nariño, Colombia, 2024/2025

(2026) New Microbes and New Infections, 72, art. no. 101785

DOI: 10.1016/j.nmni.2026.101785

LANGUAGE OF ORIGINAL DOCUMENT: English

Bogogiannidou Z., Voulgaridi I., Tseroni M., Dougas G., Apostolidi E.D., Angelouli E., Sideroglou T., Kontouli K.M., Vasileiadis S., Kontos C., Lianos A.G., Panagiotopoulou T., Babalis D., Konstantoula D., Krapis K., Karras G., Manika A., Koukouletsou C., Karametos I., Zigra M., Batziogiorgos G., Dimou S., Papageorgiou N., Georgiou D., Paraskevis D., Hatzigeorgiou D., Kokkali S., Kalala F., Mouchtouri V.A., Speletas M., Petinaki E., Hadjichristodoulou C.

Postflood leptospirosis outbreak response due to *Leptospira interrogans* and *Leptospira kirschneri* in Central Greece, 2023: comparison of laboratory and clinical manifestations

(2026) Open Forum Infectious Diseases, 13 (6), art. no. ofag301

DOI: 10.1093/ofid/ofag301

ABSTRACT: Background: In September 2023, catastrophic flooding from storms Daniel and Elias struck Thessaly, Greece. We present findings from the postflood leptospirosis outbreak investigation and key lessons for future preparedness. Methods: Ad hoc active surveillance was set up to complement national notifications. We used the national case definition for leptospirosis probable and confirmed cases. Diagnostic protocols involved clinical manifestation, polymerase chain reaction (PCR), targeted sequencing (blood/urine,) and serology. Exposure history was collected via a structured questionnaire. We performed case-series analyses, logistic regression, and receiver operating characteristic curve analysis. Results: During the 3-month postflood period, 285 probable and 45 confirmed leptospirosis cases were identified. The postflood notification rate was 6.5/100 000 population. *Leptospira kirschneri* and *Leptospira interrogans* were identified in 33 (87%) and 5 (13%) of the 38 PCR-confirmed cases, respectively. Two deaths were attributed to *L. interrogans*. Patients with *L. interrogans* had higher odds of hospitalization (odds ratio, 16 [95% confidence interval, 1.6–159.2]), elevated creatinine ($P = .03$) and urea ($P = .03$), and lower platelet counts ($P = .02$). Urine PCR had the highest diagnostic yield (84%). Patients with leptospirosis reported exposure to floodwater (89%), lack of strict adherence to personal protective equipment (100%), and limited awareness of protective measures (25%). Conclusions: The 2023 Thessaly floods led to a marked rise in leptospirosis incidence, with *L. interrogans* linked to greater clinical severity. The outbreak highlights the need for public and healthcare workers' awareness, early diagnosis, species-specific active surveillance, and One Health strategies. Strengthening multisectoral preparedness is critical as climate change increases the risk of similar events in Europe.

LANGUAGE OF ORIGINAL DOCUMENT: English

Koizumi N.

Changing landscapes, shifting reservoirs: land-use change and *Leptospira* ecology in Madagascar

(2026) Applied and Environmental Microbiology, 92 (6), art. no. e00487-26

DOI: 10.1128/aem.00487-26

ABSTRACT: Land-use change is widely recognized as a driver of zoonotic disease emergence, yet its effects are often context-dependent. In an article published in *Applied and Environmental Microbiology*, J. A. Rajaonarivelo, K. M. Kauffman, T. M. Randriamoria, J. P. Herrera, et al. (92:e02061-25, 2026, <https://doi.org/10.1128/aem.02061-25>) show that shifts in small mammal communities across a disturbance gradient in Madagascar are associated with changes in *Leptospira* prevalence and lineage distribution. Introduced rodents contributed disproportionately to infections, whereas bats exhibited distinct patterns across habitat types. These findings highlight the importance of host community composition in shaping pathogen dynamics in changing landscapes.

LANGUAGE OF ORIGINAL DOCUMENT: English

Carletti J.V., Rueda E.C., Sesma J., Cristaldi M.A., Ricardo T., Medrano C., Avalos C.A., Mendicino D.A., Previtali M.A.

Detection of pathogenic leptospires in water bodies in neighborhoods vulnerable to flooding, through a participatory research approach in Santa Fe (Argentina)

(2026) *PLOS Global Public Health*, 6 (6 June), art. no. e0006447

DOI: 10.1371/journal.pgph.0006447

ABSTRACT: This study aimed to identify areas with the presence of pathogenic *Leptospira* in marginalized neighborhoods of Santa Fe, Argentina, through a participatory research approach. Additionally, we aimed to optimize a low-cost and sensitive detection method suitable for public sector laboratories in resource-limited settings. Three neighborhoods highly vulnerable to hydrological risks and leptospirosis outbreaks—Colastiné Sur, La Vuelta del Paraguay, and Chalet—were selected. A series of meetings with local residents were conducted to discuss the risks of leptospirosis and to collaboratively map high-priority water sampling sites based on local knowledge and perceived exposure. Community members then participated actively in sample collection and documentation of environmental conditions. In parallel, we optimized a DNA extraction and qPCR protocol tailored for complex environmental matrices, enabling the sensitive detection of pathogenic *Leptospira*. *Leptospira* DNA was detected in 21.1% of the 33 water samples collected: 9.09% in La Vuelta del Paraguay, 18.18% in Chalet, and 36.36% in Colastiné Sur. The results were subsequently shared and discussed with community members, fostering a dialogue between scientific findings and local knowledge. This study is the first of its kind in Santa Fe and highlights the dual value of community engagement in environmental health surveillance and the implementation of an affordable and robust molecular tool for leptospirosis monitoring. Our findings illustrate how integrating participatory mapping with environmental sampling can guide the molecular detection of *Leptospira* in urban water bodies—an approach that has rarely been documented—and underscore the potential of combining local knowledge and accessible molecular tools to strengthen public health responses in flood-prone settings.

LANGUAGE OF ORIGINAL DOCUMENT: English

Concha D., Azócar-Aedo L., Ricardo T., Rodríguez A., Ramírez R., Paffetti M.G.

Epidemiological evidence of anti-*Leptospira* antibodies in horses at a global level (years 2015 to 2025): a systematic review and meta-analysis

(2026) *Journal of Equine Veterinary Science*, 166, art. no. 106058

DOI: 10.1016/j.jevs.2026.106058

ABSTRACT: Background Leptospirosis is a bacterial zoonotic disease with clinical consequences and potential sequelae in horses. Aims To estimate the pooled global seroprevalence of anti- *Leptospira* antibodies in horses, detected with the Microscopic Agglutination Test, the frequency by serogroups and serovars, the geographical distribution of studies and the main reported clinical signs and organic manifestations through a systematic review and meta-analysis. Methods A bibliographic search was conducted for cross-sectional epidemiologic studies published between 2015 and 2025. The risk of bias was determined and statistical tests of heterogeneity were performed, using the random effects model to obtain the pooled prevalences. Results Thirty-five documents were included, estimating a pooled seroprevalence of anti- *Leptospira* antibodies of 47.2% (95%CI=37.6–57.1%). The most frequent serogroups were Australis (20.0%) and Icterohaemorrhagiae (17.1%), while the most reported serovars were Bratislava (15.2%) and Icterohaemorrhagiae (12.1%). The highest frequency of studies was recorded in South America, followed by Europe and Asia. Brazil, Chile and the USA were the countries with the most studies. The pooled seroprevalences by continent were: 71.0% in North America; 55.0% in South America; 49.0% in Asia; 34.0% in Oceania; and 27.0% in Europe. The main clinical signs described were recurrent uveitis and fever, while frequently recorded organic manifestations included reproductive system disorders and renal failure. Conclusions The high pooled seroprevalence documented underscores the need for veterinarians, the scientific community, and public and governmental organizations involved in animal health to recognize the relevance of leptospirosis in horses, as well as to continuously update the existing knowledge about the disease.

LANGUAGE OF ORIGINAL DOCUMENT: English

Bruna S., Vilchez H., Valdés K., Ahumada R., Espinoza J.

Pulmonary manifestations in leptospirosis: case report and literature review [Manifestaciones pulmonares en leptospirosis: reporte de un caso y revisión de literatura]

(2026) Revista Chilena de Infectología, 43 (2), pp. 167 - 171

DOI: 10.4067/s0716-10182026000200122

ABSTRACT: Pulmonary involvement secondary to *Leptospira* spp. infection is a recognized clinical entity, but likely underestimated in our setting. This zoonosis is typically transmitted through contact with water contaminated with the urine of infected animals, particularly rodents. The clinical course is variable, including severe forms such as Weil's syndrome, characterized by jaundice, renal failure, and pulmonary injury. A clinical case is reported that developed acute respiratory failure with hemoptysis associated with multiorgan dysfunction. Environmental exposure to a lagoon, the presence of rodents, and cohabitation with a dog were key risk factors guiding the diagnostic suspicion. He had a favorable outcome with antimicrobial treatment. This case highlights the importance of considering leptospirosis in the differential diagnosis of hemoptysis, particularly in endemic areas with a history of environmental exposure. Early diagnosis and appropriate treatment are essential to improve prognosis.

LANGUAGE OF ORIGINAL DOCUMENT: Spanish

Díaz E.A., Sáenz C., Guzmán D., Galecio J.S., Pearson T., Barragán V.

***Leptospira* in working horses from rural Ecuador: a neglected occupational risk**

(2026) Journal of Tropical Medicine, 2026 (1), art. no. 8883896

DOI: 10.1155/jotm/8883896

ABSTRACT: Neglected tropical zoonotic diseases such as leptospirosis continue to have a significant impact on animal and human health, especially in low-income countries due to limitations in surveillance and knowledge gaps to guide mitigation. In this context, equines have the potential to play an important role in the maintenance and transmission of *Leptospira* spp. due to their susceptibility to a variety of serovars (often without signs of disease) and close contact with humans. To better understand the epidemiological role of horses, we evaluated exposure and identified circulating leptospires by collecting blood and urine samples from 13 horses used on agricultural and livestock work in the rural areas of La Concordia and Mompiche, located near the coast of Ecuador. Microscopic agglutination tests showed anti-leptospira antibodies for a variety of serotypes in 100% of 9 serum samples analyzed and pathogenic *Leptospira* DNA from *L. interrogans* and *L. santarosai* in 61.5% of 13 urine samples. These results indicate that exposure of horses to *Leptospira* is common, and a substantial proportion may actively excrete the pathogen without showing signs of disease. While the small sample size and single time point limit definitive conclusions, in areas where horses interact closely with humans and other animals, these findings suggest that horses could play a role in local environmental cycling of *Leptospira*. Our findings emphasize the need to strengthen preventive measures in both veterinary and public health areas based on hygiene and sanitary practices that are aligned with a One Health approach.

LANGUAGE OF ORIGINAL DOCUMENT: English

Peláez Sánchez R.G., Salazar Flórez J.E., Giraldo Cardona L.E., Cifuentes L.P., Mejía Sánchez D., Pineda S., Ossa-Yepes M., Torres-Castro M., Suarez-Galaz A., Urrego R., López-Rojas L.E., Agudelo-Pérez S., Monroy F.P.

***Leptospira santarosai*: a systematic review on its serological diversity, geographical distribution, natural sources of infection, and human leptospirosis**

(2026) Microorganisms, 14 (6), art. no. 1364

DOI: 10.3390/microorganisms14061364

ABSTRACT: Leptospirosis is a globally distributed zoonotic disease caused by pathogenic bacteria of the *Leptospira* genus. Currently, 77 genomic species have been described. *Leptospira interrogans* is the most extensively studied species due to its high prevalence worldwide and the severity of the disease it causes in humans and animals. However, *Leptospira santarosai* is an important pathogenic species in the Americas, the Caribbean islands, and Taiwan. This species has a high serological diversity: it can infect domestic, wild, and agricultural production animals, causing reproductive problems and substantial economic losses. Additionally, *Leptospira santarosai* has been detected in water sources and wet soils. In humans, infection with this species can lead to a wide range of clinical manifestations and severe complications. Therefore, this study aimed to synthesize available information on the serological diversity, geographical distribution, natural sources of infection, and human leptospirosis caused by *Leptospira santarosai* to better understand their role in the leptospirosis transmission cycle. **Methods:** A systematic review of the literature was conducted, following the criteria established by the PRISMA-2020 guide, the search for scientific articles was conducted in five specialized and multidisciplinary databases (PubMed, Scopus, Web of Science, SciELO, and LILACS), and a search engine (Google Scholar). Two different search strategies (*Leptospira santarosai* OR *L. santarosai*) were used. **Result:** Once the search was carried out in the databases, 2989 scientific articles were identified. These articles underwent a process of identification, screening, eligibility, and inclusion, resulting in 84 articles that met all established inclusion criteria. These articles were included in the qualitative synthesis and

elaboration of the systematic review. Conclusions: *Leptospira santarosai* shows a high serological diversity, with 14 serogroups and 59 serovars. The species has a wide geographic distribution, having been reported on five continents and in 26 countries, and has been described as an infectious agent in at least 24 host animals. It has also been detected in environmental sources such as water and wet soils; 24 serovars have been identified as the causative agents of human leptospirosis, causing clinical manifestations that range from mild to severe forms of the disease and clinical complications such as myocarditis, uveitis, and neuroleptospirosis. Although *L. santarosai* is considered native to the Americas, it shows an expansion pattern to other continents and countries. Therefore, this pathogenic species of the *Leptospira* genus represents an important public health problem worldwide.

LANGUAGE OF ORIGINAL DOCUMENT: English

Biswas R., Samanta I.

Leptospirosis

(2026) Concept of One Health and Zoonoses, pp. 125 - 133

DOI: 10.1007/978-981-95-6627-3_11

ABSTRACT: Leptospirosis, an extensively occurring zoonotic disease instigated by pathogenic spirochetes belonging to the *Leptospira* genus, constitutes a major health hazard for both humans and animals on a global scale. This chapter presents a comprehensive overview of leptospirosis, covering its epidemiology, transmission dynamics, clinical features, diagnostic approaches, and preventive strategies. Humans can contract leptospirosis through either direct or indirect contact with the urine of infected animals, such as rodents, livestock, and wildlife. Environmental conditions, such as flooding and inadequate sanitation, are essential determinants of disease transmission. The clinical presentation of human leptospirosis involves a broad spectrum, from mild, influenza-like symptoms to severe, potentially life-threatening complications, such as Weil's disease and pulmonary hemorrhage syndrome. This chapter emphasizes the diagnostic intricacies of leptospirosis owing to its nonspecific symptoms and the necessity of laboratory testing for definitive diagnosis. This chapter also highlights the crucial role of thorough disease monitoring systems, specific rodent control measures, and preventive approaches, such as vaccination initiatives and the use of personal protective gear, in effectively reducing and managing the spread of leptospirosis among both human and animal populations.

LANGUAGE OF ORIGINAL DOCUMENT: English

de Sousa Ramos L., Pereira Coelho L., da Silva Quintas E., Gonçalves Sousa V.H., Fietto Rangel J.L., Silva-Junior A., Chang Y.-F., Bressan Costa G.

Serological diagnosis of canine leptospirosis using a chimeric protein based on bacterial surface antigens

(2026) Microbial Pathogenesis, 218, art. no. 108670

DOI: 10.1016/j.micpath.2026.108670

ABSTRACT: Background: Leptospirosis, caused by pathogenic spirochetes of the genus *Leptospira*, is a re-emerging infectious disease of global significance that poses serious challenges to both human and veterinary health. Advances in diagnostic methods are essential to better understand the complex epidemiology of leptospirosis and to control its transmission, particularly from subclinically infected reservoir hosts. In this context, the use of recombinant proteins in serological diagnostics has emerged as a promising alternative to overcome the limitations of current methods for diagnosing canine leptospirosis. Objective: This study aimed

to produce a recombinant chimeric protein derived from leptospiral membrane proteins for use in serological diagnosis of canine leptospirosis. Methods: The rLEPTO1 protein was designed based on surface proteins relevant to *Leptospira* infection and evaluated using enzyme-linked immunosorbent assay (ELISA) to detect IgM and IgG antibodies in canine serum samples. A total of 120 serum samples were included. Of these, 113 had been previously classified by MAT (IgG: 59 MAT-positive and 52 MAT-negative; IgM: 53 MAT-positive and 54 MAT-negative). In addition, seven serum samples from clinically healthy dogs were included as negative controls and analyzed in both assays. Results: rLEPTO1 demonstrated a significant ability to discriminate between MAT-positive and MAT-negative samples, detecting IgM and IgG antibodies with sensitivity and specificity of 74.58% and 94.92%, respectively, for IgG-ELISA, and 73.58% and 93.44%, respectively, for IgM-ELISA. Higher sensitivity was observed in samples with elevated MAT titers, consistent with increased antibody levels in these samples. Conclusion: The rLEPTO1 protein effectively distinguished positive from negative serum samples by ELISA, showing good specificity and moderate sensitivity, and supports its potential as a complementary tool for the serological diagnosis of canine leptospirosis.

LANGUAGE OF ORIGINAL DOCUMENT: English

Ntouska M., Anthis N., Lakoniti C., Nestora K., Paschali A., Vakianis P., Drakos C., Kapadocha A., Aggeli P., Tsakalidou O., Chatzidimitriou D., Dougas G., Papa A.

Clinical and epidemiological characteristics of leptospirosis cases admitted to a district general hospital in a high-endemicity area

(2026) Acta Microbiologica Hellenica (Switzerland), 71 (2), art. no. 9

DOI: 10.3390/amh71020009

ABSTRACT: Leptospirosis is a zoonotic disease caused by spirochetes of the genus *Leptospira*, primarily transmitted via direct or indirect contact with contaminated rodent urine. Human disease ranges from a mild, flu-like illness to severe, life-threatening Weil's disease. Although the incidence of leptospirosis in Greece is not high, the Ionian Islands Region, including Corfu Island, presents the highest average frequency of cases in the country. A retrospective study of 11 confirmed cases in Corfu between 2015 and 2025 was conducted. The infections recorded during this period occurred from autumn to spring, exclusively affecting male patients in rural settings; notably, 90.9% of cases were attributed to occupational exposure. No association with urban or tourist areas was found. Although the incidence of the disease decreased by 42.1% compared to the previous decade (2005–2014), the case fatality ratio reached 27.3%, considerably above the average of 2.6% in Europe (during 2010–2022). The study underscores the need for enhanced clinical awareness and targeted preventive measures in Corfu, mainly among patients with at-risk occupations. Timely preparedness is needed especially in the face of ongoing climate change.

LANGUAGE OF ORIGINAL DOCUMENT: English

Ristiyoanto R., Mulyono A., Handayani F.D., Wigati R.A., Mujiyanto M., Garjito T.A., Kesuma A.P., Wahono T., Hidajat M.C., Setyaningtyas D.E., Widayati A.N., Maryanto I.

Prevalence of leptospirosis and age structure of *Rattus norvegicus* (Berkenhout, 1769) (*Mammalia: Rodentia: Muridae*) across urban areas in Indonesia

(2026) Taprobanica, 15 (1), pp. 48 - 55

DOI: 10.47605/tapro.v15i1.400

ABSTRACT: This study examined the age structure and prevalence of *Leptospira* infection in *Rattus norvegicus* to assess age-related transmission of leptospirosis. Sampling was conducted from 2015 to 2021 across five urban locations in Indonesia: Semarang City, Demak Regency, Bandung Regency, Makassar City, and Samarinda. Rats were trapped in indoor and outdoor habitats, euthanized, and sampled for blood and eye lenses. Conventional PCR was used to detect *Leptospira* DNA in kidney samples, while lens weight was used to estimate age. A total of 263 rats were captured (159 females, 104 males), ranging in age from 126.4 to 1037.5 days. Infection prevalence was highest among rats aged 240.3–354.2 days (9 individuals) and 126.4–240.3 days (7 individuals), with most positives occurring indoors (23 individuals) compared to only 10 individuals outdoors. Overall, 12.5% of rats (33 individuals) tested positive, with 69.7% (23 individuals) recorded indoors and 30.3% (10 individuals) outdoors. Females showed slightly higher prevalence (13.2%, 21 individuals) than males (11.5%, 12 individuals). The predominance of infected rats in indoor habitats indicates a higher risk of transmission, particularly in Semarang and Demak.

LANGUAGE OF ORIGINAL DOCUMENT: English

Al Hariri Y.K., Sulaiman S.A.S., Khan A.H., Adnan A.S., Al-Ebrahim S.Q., Ali A., Hassan N.

Epidemiological predictors of severe leptospirosis in adults: a multicenter retrospective cohort study in Northeastern Peninsular Malaysia

(2026) Acta Microbiologica Hellenica (Switzerland), 71 (2), art. no. 16

DOI: 10.3390/amh71020016

ABSTRACT: Leptospirosis is among the most widespread zoonotic infections globally and is particularly prevalent in tropical settings, where it remains endemic. In Malaysia, the disease burden has increased markedly over recent decades. Severe leptospirosis can result in multi-organ dysfunction and death; however, early identification of patients at risk of a severe clinical course remains a significant challenge. This study aimed to determine independent clinical and laboratory predictors of severe leptospirosis among adults admitted to hospitals in northeastern Malaysia. A multicenter retrospective cohort study was conducted at two tertiary referral hospitals in Kelantan, northeastern Peninsular Malaysia, over a seven-year period. Adults with confirmed leptospirosis were categorised as severe or non-severe according to established clinical criteria. Group comparisons were performed using appropriate statistical tests, followed by multivariable logistic regression with internal bootstrap validation to identify independent predictors of severe disease. Of 525 patients included in the final analysis (mean age 38.1 ± 16.8 years; 65.5% male), 303 (57.7%) met criteria for severe leptospirosis and overall, in-hospital mortality was 6.5%. Common presenting symptoms (>30% of patients) included fever, myalgia, nausea, vomiting, and arthralgia. Independent predictors of severe disease identified on multivariable analysis were; age > 40 years, delayed hospitalisation (presentation after four days of symptom onset), T-wave changes on electrocardiography, conjunctival suffusion, hyponatraemia, prolonged prothrombin time, and elevated alanine aminotransferase (all $p < 0.05$). The predictive model demonstrated good discriminatory ability (AUC 0.794, 95% CI: 0.747–0.841). Severe leptospirosis is associated with distinct clinical and laboratory features at presentation. Early recognition of key risk factors—particularly older age, delayed presentation, and electrocardiographic abnormalities—may enable clinicians to stratify risk, initiate timely targeted interventions, and potentially reduce morbidity and mortality in this endemic setting.

LANGUAGE OF ORIGINAL DOCUMENT: English

Orlando S.A., Mora Jaramillo N., Pesántez Montenegro A., Carvajal-Capa M.J., Zuñiga-Velarde J.J., Tafur S., Garcia-Bereguain M.A.

High positivity rate for *Leptospira* infection in symptomatic urban owned dogs in Guayaquil, Ecuador

(2026) Tropical Medicine and Infectious Disease, 11 (6), art. no. 145

DOI: 10.3390/tropicalmed11060145

ABSTRACT: Leptospirosis is a zoonotic disease caused by spirochete bacteria of the genus *Leptospira*, with a wide global distribution. In Ecuador, leptospirosis is endemic, particularly in low-resource tropical areas, and multiple animal reservoirs have been identified either in rural or urban areas, including stray dogs. In this study, a total of 81 domestic dogs presenting clinical manifestations compatible with leptospirosis were recruited at the Municipal Center for Animal Welfare in Guayaquil, Ecuador, in 2023. A survey regarding clinical, demographic, and environmental risk factors was filled in by every dog's owner; urine and blood samples were collected for pathogenic *Leptospira* diagnosis by qPCR for lipL32, rrs, and secY gene targets. A very high (62.96%) positivity rate for *Leptospira* infection was found. Almost 90% of the dogs were not vaccinated against *Leptospira*. Although the animals exhibited multiple clinical signs, none showed a statistically significant association with *Leptospira* positivity, confirming the nonspecific presentation of the disease and its potential for misdiagnosis. The consumption of bulk food emerged as a significant environmental risk factor only in the multivariate logistic regression and not in the univariate analysis, suggesting the need for improved food safety practices. Moreover, we reported very frequent close-contact behaviors between owners and dogs. Overall, our study underscores the potential role of owned urban dogs as reservoirs of *Leptospira* in the city of Guayaquil in Ecuador, emphasizing the need for public health policies to increase awareness and improve diagnosis in domestic animals under a comprehensive One Health vision.

LANGUAGE OF ORIGINAL DOCUMENT: English

Khatoon F., Vedachalam S.K., Choudhary S., Joshi S.K., Jain P.K., Bahurupi Y., Fareeduzzafar M., Singh M., Singh P.K.

A cluster of co-occurring cases of leptospirosis and brucellosis in a pastoral community of dairy farmers, India, 2023–2024: An epidemiological investigation

(2026) Western Pacific Surveillance and Response Journal : WPSAR, 17 (2)

DOI: 10.5365/wpsar.2026.17.2.1327

ABSTRACT: Objective: A cluster of leptospirosis and brucellosis cases in a semi-nomadic, pastoral community was reported in October 2023 from Village A, Uttarakhand State, India. This cluster was investigated to describe the epidemiology and potential exposures. Methods: Suspected cases were residents with sudden-onset fever or myalgia occurring from 1 August 2023 to 7 January 2024; confirmed cases were suspected cases with laboratory confirmation. Suspected cases were identified through a house-to-house case search and were interviewed regarding sociodemographic variables, symptoms and exposures. Those who consented were tested. Data were cleaned and analysed in Microsoft Excel. Results: Fifty suspected cases were identified among a total of 300 residents across 85 households. Among these, 27 agreed to be tested, and 25 were confirmed (13 with leptospirosis, 7 with brucellosis and 5 with both leptospirosis and brucellosis). The cases began in September 2023 following flooding and continued until January 2024, with no deaths. The median age (range) of cases was 30 (17–82) years for leptospirosis, 39 (25–56) years for brucellosis and 39 (22–50) years for coinfection. Altogether, females accounted for 92% (12/13) of leptospirosis cases, 57% (4/7) of brucellosis cases and 80% (4/5) of coinfections. Symptoms included fever, myalgia and arthralgia. All cases

reported contact with floodwater and animal abortus. Discussion: This was a laboratory-confirmed co-occurring cluster of leptospirosis and brucellosis, including five cases of coinfection, following flooding, predominantly affecting female Van Gujjar dairy farmers. Education was provided to the community about the hygienic disposal of animal waste.

LANGUAGE OF ORIGINAL DOCUMENT: English

Sharma K., Tiwari N., Mishra N., Sharma M.

Neuroimmune cross-talk in *Leptospira*-associated acute encephalopathy syndrome

(2026) Frontiers in immunology, 17, pp. 1831261

DOI: 10.3389/fimmu.2026.1831261

ABSTRACT: The *Leptospira*-associated acute encephalopathy syndrome (AES) is a severe neurological complication, largely affecting the endemic regions. Unlike other classical neurotropic infections, *Leptospira*-induced encephalopathy is mainly induced via immune-mediated mechanisms through dysregulation of glial response and peripheral immunity. The onset of infection is marked by the invasion of early innate immune clearance. There is a substantial presence of bacteremia and elevated peripheral inflammation due to the atypical engagement of pattern recognition receptors. The enhanced circulating cytokines and endothelial dysfunction cause blood-brain barrier disruption, along with the activation of nuclear factor-kappa B (NF- κ B) and mitogen-activated protein kinase (MAPK) cascades. The subpopulations of the glial cells are the primary central nervous system (CNS) populations that undergo activation, such as microglia and astrocytes, to re-establish homeostasis. There is a positive feedback loop activation for the inflammation pathway, with exacerbated cerebral edema and neuronal dysfunction, which are characteristic of AES. The severity of neuronal parasitic disease correlated with immune dysregulation and glial activation rather than the direct *Leptospira* infection in the neuronal tissue. It may be proposed that the *Leptospira*-induced AES represents a neuroimmune disorder in which peripheral immune activation and glial-driven neuroinflammation converge to produce acute cerebral dysfunction. Understanding these interconnected pathways is essential for improving diagnosis and developing targeted therapeutic strategies for Leptospirosis/*Leptospira*-associated AES.

LANGUAGE OF ORIGINAL DOCUMENT: English

Limothai U., Stone N.E., Tachaboon S., Dinhuzen J., Sahl J.W., Sukmark T., Dokpong C., Wagner D.M., Haake D.A., Srisawat N.

Clinical predictors of fatal outcomes from human leptospirosis, Thailand, 2015 - 2024

(2026) Emerging Infectious Diseases, 32 (7), pp. 1094 - 1103

DOI: 10.3201/eid3207.260014

ABSTRACT: Early predictors of fatal leptospirosis and the role of pathogen lineages remain poorly defined, limiting clinical risk stratification, genomic surveillance, and public health response in leptospirosis-endemic settings. We conducted a multicenter prospective cohort study of hospitalized patients with suspected leptospirosis in Thailand during 2015–2024. Among 459 patients with laboratory-confirmed cases, 25 (5.4%) died during hospitalization. Older age, higher total bilirubin, and higher leptospiremia were independently associated with in-hospital death, and a combined model demonstrated good discriminatory performance. We performed targeted amplicon sequencing analysis directly on clinical samples and whole-genome sequencing on available isolates. Genomic analysis identified *Leptospira interrogans* as the predominant species; clonal group 272 sequence type 34 was the predominant lineage and was observed in all patients with fatal cases

for whom genomic data were available. Our findings support integration of clinical predictors and pathogen load for early risk stratification and highlight the potential value of genomic surveillance in leptospirosis-endemic settings.

LANGUAGE OF ORIGINAL DOCUMENT: English

dos Santos Siqueira G., Silva Batista Nogueira D., Guedes Barbosa I., Soares Rodrigues R., da Silveira Guimarães N., de Souza Oliveira G., Petri Simões B.S., Furuya H., Dias Augusto R., Neto Soares Ferreira J., Heinemann M.B.

Serological and molecular detection of *Leptospira* spp. in ring-tailed coatis (*Nasua nasua*) from an Ecological Park

(2026) Veterinary Research Communications, 50 (5), art. no. 434

DOI: 10.1007/s11259-026-11372-4

ABSTRACT: Wild animals often play a role in the transmission of zoonotic pathogens. Among the wild mammals of South America, ring-tailed coatis (*Nasua nasua*) can present a high frequency of anti-*Leptospira* antibodies and carry *Leptospira* spp. This study aimed to evaluate the frequency of serum anti-*Leptospira* antibodies and perform the molecular identification of *Leptospira* spp. in ring-tailed coatis living in the Tietê River Ecological Park, in southeastern Brazil. Blood and urine samples were obtained from ring-tailed coatis. The serum was tested using the Microscopic Agglutination Test (MAT). Urine was cultured in semi-solid Ellinghausen–McCullough–Johnson–Harris medium. The inoculum was cultivated at 28 °C and monitored over six weeks. Total DNA from the blood and urine samples was extracted, and the 16 S rRNA gene and lipL32 were searched by PCR. Of 192 animals, 36 (18.75%) had positive serum samples in the MAT. The most frequent serogroups in MAT were Grippotyphosa (11.46%; 22/192), Autumnalis (7.81%; 15/192) and Cynopteri (2.60%; 5/192). A total of 116 urine samples were obtained. None of the *Leptospira* spp. were isolated, twelve samples were positive for the 16 S rRNA gene (10.34%), and four were positive for the lipL32 gene (3.4%). These results indicate a high frequency of serum anti-*Leptospira* spp. antibodies in coatis from the Tietê River Ecological Park and highlight the possibility of their potential role as carriers of pathogenic *Leptospira* spp. in urine.

LANGUAGE OF ORIGINAL DOCUMENT: English

Scialfa E.A., Ochoa Guevara C., Holzman M., Videla Y.P., Rivero M.A.

Epidemiological and environmental risk factors for human leptospirosis cases in Buenos Aires Province, Argentina (2000–2016): an ecological study

(2026) Zoonoses and Public Health

DOI: 10.1111/zph.70074

ABSTRACT: Introduction: Leptospirosis is a globally significant zoonotic disease particularly prevalent in subtropical regions subject to recurrent flooding. In Argentina, Buenos Aires province ranks third nationally in confirmed human cases. This study characterises the epidemiology of human leptospirosis in Buenos Aires province and assesses the association between rainfall, Terrestrial Water Storage (TWS), and leptospirosis cases. Methods: An ecological time-series study was conducted using leptospirosis notifications from 85 municipalities between 2000 and 2016. Cases were confirmed by microscopic agglutination test (MAT). Rainfall data were obtained from 30 meteorological stations, while TWS was derived from GRACE satellite data. Results: Of 5629 suspected cases, 487 (8.7%) were confirmed, with Canicola identified as the main

infecting serogroup. The case fatality rate was 2.3%. Middle-aged males (79.3%) were most affected, with exposure linked to contaminated water and domestic animals. Thirty-one outbreaks occurred during the study period, resulting in a 32% increase in confirmed cases. Leptospirosis exhibited an interannual pattern associated with excess water, with cases rising significantly when rainfall exceeded the annual average. Leptospirosis incidence was highly correlated with TWS variations ($R = 0.82$, $p = 0.00019$), whereas annual precipitation showed a weaker, non-significant correlation ($R = 0.37$, $p = 0.176$). Conclusions: Unlike precipitation, TWS integrates soil moisture and shallow waterlogging conditions that favour leptospiral survival and transmission in Buenos Aires province. Given the ecological design, results reflect population level associations and should be interpreted as preliminary ecological evidence, acknowledging potential residual confounding from socioeconomic, occupational, and sanitation factors. TWS derived from GRACE offers a complementary metric to precipitation for hydrological risk monitoring and could be incorporated into early warning systems and public health policy to reduce leptospirosis burden in the most vulnerable municipalities. LANGUAGE OF ORIGINAL DOCUMENT: English

Zhu X.X., Zhen Y., LI W.B., Wang X.H., Huang F.L.

A case report of leptospirosis with positive cerebrospinal fluid targeted next-generation sequencing
(2026) IDCases, 45, art. no. e02677

DOI: 10.1016/j.idcr.2026.e02677

ABSTRACT: Leptospirosis is a global zoonotic disease caused by pathogenic *Leptospira* species, predominantly *Leptospira interrogans*. Transmission to humans typically occurs via mucosal or percutaneous exposure to water contaminated by the urine of reservoir hosts, such as rodents and livestock. We report a case of a 67-year-old male admitted with a 2-day history of fever and a 1-day history of altered mental status, complicated by jaundice and hepatorenal failure. A definitive diagnosis of leptospirosis (icterohemorrhagic phenotype) was established by correlating the patient's clinical manifestations and history of occupational exposure in rice paddies with the detection of *Leptospira* species via cerebrospinal fluid (CSF) targeted next-generation sequencing (tNGS). After treatment with meropenem, corticosteroids to prevent the Jarisch–Herxheimer reaction, and therapy to protect the liver and reduce jaundice, the patient's organ function and mental status improved. This case suggests that for febrile patients with epidemiological exposure, neurological symptoms, and multi-organ involvement, early use of CSF tNGS can improve the diagnosis of leptospirosis, providing a critical basis for early and precise treatment.

LANGUAGE OF ORIGINAL DOCUMENT: English

Sumanto D., Maulidia N.C., Chakim I., Mifbakhuddin

Leptospirosis: the relationship between rats, clean and healthy living behavior, and living environment conditions

(2026) Journal of Communicable Diseases, 58 (2), pp. 98 - 104

DOI: 10.24321/0019.5138.202634

ABSTRACT: Background: Leptospirosis is a zoonotic disease that remains a public health problem in tropical regions, including Indonesia. Demak Regency, particularly the Sayung 1 Community Health Center (Puskesmas Sayung 1), is an endemic area with a high incidence and mortality rate of leptospirosis. This study aims to determine the relationship between the presence of rats, clean and healthy living behaviours, and environmental conditions with the incidence of leptospirosis. Methods: An observational, analytical design was

chosen, employing a cross-sectional approach. 100 respondents were selected using a purposive sampling technique. Data collection used a structured questionnaire that had undergone expert testing. Bivariate analysis used the chi-square test ($p \leq 0.05$). Results: The presence of rats was significantly associated with the incidence of leptospirosis ($p = 0.000$). Most respondents had not fulfilled all indicators of clean and healthy living behaviour, such as waste separation and rat vector control. Furthermore, the physical condition of households is still suboptimal, as evidenced by the low proportion of houses with roofs and ventilation that meet health standards. Conclusion: Although only the presence of rats proved statistically significant, leptospirosis prevention efforts still require a comprehensive approach encompassing behavioural education, physical environmental improvements, and ongoing vector control. This is crucial in areas with a high risk of leptospirosis transmission.

LANGUAGE OF ORIGINAL DOCUMENT: English

Joshua V., Dhanapaul S., Shanmugam P., Appadurai M.

Comparative evaluation of serological and molecular techniques for the diagnosis of leptospirosis in a Tertiary Care Centre

(2026) Journal of Communicable Diseases, 58 (2), pp. 9 - 16

DOI: 10.24321/0019.5138.202624

ABSTRACT: Introduction: Leptospirosis is a common bacterial infection, passed from animals to humans around the world. It presents with a wide range of symptoms. These can mimic other infections like dengue or typhoid, malaria and influenza. Hence, lab testing is required for diagnostic confirmation and initiation of early treatment which can be lifesaving, in some instances. Often, serological methods like IgM ELISA, rapid Immunochromatography, or molecular methods like PCR are used for laboratory diagnosis. The gold standard test, Microscopic Agglutination Test (MAT), is available only in reference laboratories. Aim: To compare the diagnostic accuracy and utility of common serological tests in practice for diagnosing leptospirosis, such as Rapid IgM (Immunochromatography), IgM ELISA, real-time PCR, and Microscopic Agglutination Test (MAT). Methodology: Blood samples were collected from 208 patients presenting with fever, accompanied by headache, myalgia, or conjunctival suffusion, between December 2022 and June 2024 at a medical college hospital. All samples were tested by Rapid Leptospira IgM, Anti-Leptospira IgM ELISA, serovar-specific MAT, and Leptospira Real-time PCR. The diagnostic accuracy of each method was studied by comparing it with MAT, the gold standard reference test. Results: Among the 208 samples, 46 (22%) were IgM ELISA positive, 30 (14.4%) were MAT positive, 19 (9.33%) were real-time PCR positive, and 5 (2.4%) were positive by rapid IgM. The most prevalent serovar was *Leptospira grippityphosa* with 50 % positivity. 208 samples tested, when compared against the reference gold standard MAT, IgM ELISA showed a sensitivity of 100% with a specificity of 92% whereas rapid IgM Immunochromatography demonstrated a low sensitivity of 17% with a higher specificity of 100%. Conclusion: The *Leptospira* IgM ELISA method can be an effective screening tool for diagnosing leptospirosis, and samples positive by IgM ELISA should be confirmed with MAT or real-time PCR.

LANGUAGE OF ORIGINAL DOCUMENT: English

Singh K., Venugopal V., Puskar K., Kaushik B., Dubey P.K.

A rapid turn for the worse: steroid-responsive pulmonary haemorrhage in leptospirosis

(2026) Tropical Doctor

DOI: 10.1177/00494755261467825

ABSTRACT: A 43-year-old man presented with fever and cough and was initially treated for community-acquired pneumonia. Within 24 h, he deteriorated and was admitted with type 1 respiratory failure. A recent history of exposure to waterlogged fields, along with progressive decline in haemoglobin, platelet counts and deranged liver function tests, raised suspicion for leptospirosis, later confirmed by positive IgM serology. With progressive clinical and radiological worsening, severe pulmonary haemorrhagic syndrome was considered. He was managed with oxygen, noninvasive ventilation (NIV), ceftriaxone, doxycycline, cotrimoxazole, and pulse methylprednisolone. He showed significant improvement and was successfully weaned off NIV and oxygen. This case highlights the importance of early recognition and timely initiation of steroid therapy in severe leptospiral pulmonary involvement.

LANGUAGE OF ORIGINAL DOCUMENT: English

Ivakhiv O., Vyshnevskaya N., Iosyk I., Vyshnevskaya Y., Zavidniuk N.

A diagnostically challenging leptospirosis case in a serviceman in a combat zone

(2026) Military Medicine, 191 (7-8), pp. e1760 - e1765

DOI: 10.1093/milmed/usaf491

ABSTRACT: In recent years, the incidence of leptospirosis in Ukraine has been increasing because of a number of factors, such as climate change and the ongoing war. The aim of this case report is to present a case of challenging leptospirosis diagnosis in a serviceman. A 38-year-old male, although in a combat zone, repeatedly noted the presence of mice in his deployment locations. He experienced an acute onset of illness with fever, muscle pain, and pronounced general weakness. He self-administered an antibiotic. Subsequently, he developed a cough and shortness of breath upon exertion. He was hospitalized with a diagnosis of pneumonia. *Klebsiella pneumoniae* was isolated from his sputum. He was successively prescribed cefepime and meropenem, but no clinical improvement was observed: fever, cough, and CT changes were still present. As the infiltrative focus was localized in the right upper lobe, differential diagnosis with tuberculosis was performed. Sputum PCR and repeated CT allowed excluding tuberculosis. Because of persistent fever, myalgia, development of polyuria, and taking into account his epidemiological history, the patient was additionally tested for leptospirosis. The diagnosis of leptospirosis was verified by detecting specific serum antibodies by the microagglutination lysis reaction with a dynamic increase in their titer. The patient's condition improved after prescribing piperacillin-tazobactam, to which leptospires were sensitive. This clinical case highlights that atypical clinical manifestations and their inadequate assessment can complicate the timely diagnosis of leptospirosis. Servicemen in field conditions are in a risk group for this infection.

LANGUAGE OF ORIGINAL DOCUMENT: English

Quizon B.L.M., Ginete-Garcia J.K.

The pattern and distribution of ventilatory defects after extracorporeal membrane oxygenation in survivors of leptospirosis with acute respiratory distress syndrome: a single-center cross-sectional study

(2026) Acta Medica Philippina, 60 (13), pp. 42 - 47

DOI: 10.47895/amp.v60i13.13636

ABSTRACT: Background and Objective. Pulmonary hemorrhage and acute respiratory distress syndrome (ARDS) are complications of severe leptospirosis with higher mortality rates. These are indications for initiating extracorporeal membrane oxygenation (ECMO). Given the improved survival of leptospirosis patients undergoing ECMO, little is known about the expected pulmonary function, including the presence and severity

of possible ventilatory defects following these complications and intervention. This study aimed to determine the pattern and distribution of ventilatory defects in patients who underwent ECMO for severe leptospirosis with ARDS and survived. **Methods.** This is a cross-sectional study that reviewed all patients who underwent ECMO for severe leptospirosis and ARDS at the National Kidney and Transplant Institute from its initiation in 2018 up to December 2021. The primary outcomes measured were the presence and severity of ventilatory defects by spirometry. Secondary outcomes included the clinical profile, laboratory findings, radiologic features, duration on mechanical ventilation, and duration on ECMO. Stata17 was used for data analysis. **Results.** Among 14 patients meeting the inclusion criteria, 11 were male with a mean age of 30 years (SD, 6.2). Using spirometry, 13 had a restrictive ventilatory defect, while only 1 had a normal result. Of the 13 patients, 9 had mild disease, 2 each had moderate, and moderately severe disease. A lower platelet count, lower PaO₂/FiO₂ ratio (PFR), higher SOFA score, and longer duration of days on ECMO were noted in the group with ventilatory defect. Meanwhile, longer duration of days on mechanical ventilation (MV) and ECMO, higher procalcitonin, and higher APACHE-II scores were noted in patients with moderately severe restrictive ventilatory defect. **Conclusions.** This study suggests that restrictive ventilatory defect may be seen among patients who survived severe leptospirosis and ARDS after undergoing ECMO.

LANGUAGE OF ORIGINAL DOCUMENT: English

Camelo I.M., Cabral Barros B.V., Sousa Gomes D., Sousa Bezerra G.J., Pereira Duarte M.L.

Leptospirosis incidence and mortality: a spatio-temporal analysis, Ceará, 2007-2023

(2026) *Epidemiologia e Servicos de Saude*, 35, art. no. e20250108

DOI: 10.1590/S2237-96222026v35e20250108.en

ABSTRACT: Objective: To analyze the spatio-temporal pattern of leptospirosis incidence and mortality in Ceará between 2007 and 2023. **Methods:** This was a descriptive observational study with temporal (joinpoint regression), spatial (Bayesian smoothing and Getis-Ord Gi²), and spatio-temporal (scan) analyses to identify risk areas, based on secondary data from the Department of Informatics of the Brazilian National Health System. The study assessed the incidence and mortality rates of leptospirosis in Ceará between 2007 and 2023. **Results:** A total of 1,319 leptospirosis cases were recorded, mostly among men (83.9%, n=1,107), young adults aged 15-39 years, and Brown (Brazilian mixed race) people (78.5%, n=1,035). Temporal analysis of incidence revealed three periods of interest: 2007-2009, 2009-2013, and 2013-2023, with respective annual percent changes (APC) and 95% confidence intervals (95%CI): (i) 91.4% (95%CI 24.9; 203.8; p-value 0.002); (ii) -38.4% (95%CI -54.5; -26.8; p-value 0.002); and (iii) 9.4% (95%CI 2.8; 21.1; p-value 0.007). Mortality also showed three distinct periods: a decrease between 2007 and 2014 (APC -13.7%; 95%CI -38.5; -2.8; p-value 0.020), an increase between 2014 and 2019 (APC 27.6%; 95%CI 8.5; 88.8; p-value 0.010), and another decline between 2019 and 2023 (APC -20.6%; 95%CI -58.8; -6.4; p-value 0.010). Hotspots of incidence were identified in Fortaleza, Várzea Alegre, and Pacoti. **Conclusion:** Leptospirosis in Ceará is associated with heavy rainfall and precarious socio-environmental conditions. Integrated prevention measures, such as improved sanitation and rodent control, are crucial for reducing the disease burden in the state.

LANGUAGE OF ORIGINAL DOCUMENT: English

Aymée L., Borges dos Santos Baptista A.L., Di Azevedo Nogueira M.I., Lilenbaum W.

Genetic epidemiology of bovine leptospirosis: a global perspective from sequence and genome datasets

(2026) *Animals*, 16 (13), art. no. 2017

DOI: 10.3390/ani16132017

ABSTRACT: Leptospirosis is an important reproductive disease in bovine hosts, yet its epidemiology is still largely inferred from serology, which provides limited resolution in bovines. Although genetic studies based on genotyping and whole-genome sequencing approaches are increasing, a comprehensive overview is still lacking. We analyzed bovine-origin sequences and genome metadata from databases to characterize patterns of *Leptospira* species and serogroups and to describe genotyping methods and molecular markers. Metadata were retrieved from GenBank and the Institut Pasteur cgMLST databases until January 2026. Extracted variables included species, genotyping approach/markers, serological classification of isolates, sample type and origin (renal vs. genital), clinical signs, and geographic location; climates were assigned using Köppen–Geiger classification. After selection, 569 records were retrieved: 411 single-locus sequences (eight molecular markers), 95 MLST profiles, and 63 genomes, from 35 countries, with most reports from South America (57.6%). Records spanned tropical, temperate, steppe, Mediterranean, and continental-cold climates. Nine species and 14 serogroups were identified; tropical and temperate areas showed greater diversity. The main agents, *L. interrogans*, *L. borgpetersenii*, and serogroup Sejroe, were predominant and widespread. Notably, *L. noguchii*, *L. santarosai*, *L. venezuelensis*, and *L. wolffii* were mostly concentrated in the Americas. Most records were from renal samples (68.7%), indicating limited focus on genital leptospirosis, and 83.5% lacked clinical information, limiting links between strains and manifestations. Overall, bovine leptospirosis is worldwide distributed, but gaps persist in marker standardization for single-locus sequencing and genome availability. Standardized genotyping, increasing genital sampling, and improving clinical metadata are essential for refining surveillance and clarifying the role of emerging species.

LANGUAGE OF ORIGINAL DOCUMENT: English

Stollberg K., Richter M., Windahl U., Pyskun O., Lindahl J.F., Wainaina M.

Human-to-human transmission of leptospirosis: a global systematic review

(2026) *Frontiers in Public Health*, art. no. 1782163

DOI: 10.3389/fpubh.2026.1782163

ABSTRACT: Introduction – Leptospirosis is typically transmitted when persons are exposed to infected animals or contaminated environments. Human-to-human transmission is currently reported non-systematically, and has unknown public health implications. Methods – Therefore, literature searches were performed on Embase, PubMed, Scopus, and Web of Science databases to identify relevant publications. Clinical data describing the index and secondary cases were extracted and the evidence strength was assessed. Results – The search yielded 10, 658 results, and 27 publications covering 34 suspected reports were included. Strong evidence (n = 12) was found for vertical transmission occurring either transplacentally or via lactation. Transmission via sexual contact (n = 3) and blood transfusion (n = 1) was not well proven. Discussion – Human-to-human leptospirosis transmission may play a role in leptospiral epidemiology and lead to clinical cases, especially through vertical spread. However, no evidence of sustained human-to-human transmission was found as there was no record of infections beyond the secondary cases. Public health systems in endemic areas should remain vigilant for these less-reported modes of transmission to safeguard health. Robust One Health surveillance is required to improve detection and awareness, reduce underreporting and improve disease control.

LANGUAGE OF ORIGINAL DOCUMENT: English

Marababol R.J.L., Rivera W.L.

Draft genome sequence of *Leptospira yasudae* strain Ss3a1f from Estero De Paco, Manila, Philippines

(2026) Microbiology Resource Announcements, 15 (7), art. no. e00547-26

DOI: 10.1128/mra.00547-26

ABSTRACT: *Leptospira yasudae* is one of the pathogenic species of the genus *Leptospira*. Here, we report the draft genome sequence of *L. yasudae* strain ss3a1f from the Philippines isolated from an environmental soil sample collected in Estero de Paco, Manila.

LANGUAGE OF ORIGINAL DOCUMENT: English

Lekhal L., Medrouh B., Boukert R., Kaidi R., Khelef D.

Poll study for cross-sectional analysis of population data on rodent zoonoses, specifically leptospirosis, in the north-central region of Algeria

(2026) Egyptian Journal of Veterinary Science, 57 (2), pp. 269 - 279

DOI: 10.21608/ejvs.2024.328398.2426

ABSTRACT: The main objective of our study was to highlight the Blida region population knowledge status about rodent zoonosis, mainly leptospirosis. Data were collected through printed questionnaires applied to a sample of 252 interviewees. The data were entered and coded into tables in Microsoft Excel 2013 and then transferred into the R program for advanced analysis, frequencies were also calculated. The result showed that 91.3% of the respondents confirmed the transmission of the diseases from rodents to humans, however the knowledge about the main risk factors of transmission was insufficient; 38.5% of them stated that contamination occurs through rodent's bite, while, only 6.35% of the respondents cited contamination through contaminated food and 0.4 % of them cited contamination through sewage water. Plague was the most mentioned (23.01%) zoonosis. Some of the interviewees cited respectively, Malaria and Cholera (0.4%, 1.98%); however, these diseases are not associated with rodents. Regarding prophylaxis; 32.9% declared that cleaning and hygiene are necessary to avoid rodent's zoonosis transmission. Concerning leptospirosis, only 14.7% Heard or knew about the disease with urine as a principal factor of transmission cited by just 4.37% and jaundice as symptom by only 2% of the participants. Our study indicates the potential knowledge of the population of Blida about rodent zoonosis and its spread, which needs to be increased.

LANGUAGE OF ORIGINAL DOCUMENT: English

Sluydts V., Bouilloud M., Galan M., Alburkat H., Bordes A., Bourret V., Colombo V., DeBruyn L., Dutra L., Eccard J., Firozpoor J., Gallet R., Grzybek M., Henttonen H., Jacob J., McManus A., Sironen T., Stuart P., Tatard C., Roche B., Leirs H., Charbonnel N.

Drivers of host–pathogen community assemblages in european forests and urban green spaces

(2026) Integrative Zoology

DOI: 10.1111/1749-4877.70149

ABSTRACT: Despite advances in understanding infectious diseases, the persistence and re-emergence of wildlife pathogens continue to raise public and veterinary health concerns. This study investigates the relationship between biodiversity and rodent-borne diseases in Europe, focusing on habitat alterations and their impact on rodent diversity. We present host–pathogen data from 21 temperate forest sites and eight urban green spaces throughout five European countries, environments where rodents are abundant and human/domestic animals—wildlife interactions are likely to occur. From 2020 to 2022, 3766 specimens

comprising 15 different small mammal species were analyzed. Samples were screened for bacteria via 16S rRNA sequencing or PCR, and for viral antibodies using immunofluorescent assays. Pathogens from several genera, including Bartonella, Borrelia, Mycoplasma, Anaplasma, Neoehrlichia, Leptospira, Orthohantavirus, and Orthopoxvirus, were detected at non-negligible prevalence in 11 host species. Host community composition differed between habitats, with more urban adapters in parks than in forests. Pathogen richness increased with an increase in host species diversity, supporting the “host-diversity begets parasite-diversity” hypothesis, though not with anthropization. The absence of some vector-transmitted parasites in urban areas suggests a shift in pathogen community driven by human impact. Host species and intrinsic factors were dominant explanatory variables for Mycoplasma species and Sarcocystidae, while extrinsic environmental and climatic factors influenced variations in several vector-transmitted pathogens. Apodemus sylvaticus and Clethrionomys glareolus served as important connector hosts in urban spaces and temperate forests, respectively. These results improve our understanding of the complex local host-pathogen system, aiding future management decisions and supporting the public health sector.

LANGUAGE OF ORIGINAL DOCUMENT: English

Quizon B.L.M., Adiong A.A., Dayao M.J.A., Follosa E.M.C.

Electrocardiographic findings and incidence of new-onset atrial arrhythmia among patients with severe leptospirosis who underwent veno-venous extracorporeal membrane oxygenation: a single center cross-sectional study

(2026) Acta Medica Philippina, 60 (13), pp. 28 - 34

DOI: 10.47895/amp.v60i13.13637

ABSTRACT: Background. Leptospirosis is a zoonotic disease caused by Leptospira species that remains endemic in the Philippines. In severe cases, patients present with multiple organ system failure such as acute renal failure and acute respiratory distress syndrome (ARDS) requiring renal replacement therapy, mechanical ventilation, and novel treatment modalities such as extracorporeal membrane oxygenation (ECMO). Cardiac complications such as atrial arrhythmia also occur in cases of severe leptospirosis leading to worse outcomes. There is limited data on the electrocardiographic findings in patients with severe leptospirosis undergoing ECMO along with the incidence of new-onset atrial arrhythmia while managed on this intervention with unique hemodynamic system. Methods. A cross-sectional study among patients with severe leptospirosis and ARDS who underwent V-V ECMO was conducted at the National Kidney and Transplant Institute. Primary outcome was defined as the presence of new-onset atrial arrhythmia during ECMO. Secondary outcomes included in-hospital mortality, length of hospital stay, duration of mechanical ventilation, duration of ECMO, and development of thrombotic events. Results. Among 31 patients included, 90.3% (n = 28) were male and median age was 33.48 ± 10.0 years. The most common ECG finding was atrial fibrillation with an incidence of 32.3% (n = 10), half of which occurred before ECMO, while the other half were noted after cannulation. During ECMO, the incidence of new-onset atrial arrhythmia was found to be at 19.4% (n = 6). Patients with new-onset atrial arrhythmia had higher white blood cell, total bilirubin, BUN, creatinine, APACHE-II scores, use of dopamine, lower platelet count and lower PaO₂/FiO₂ ratio. Two patients (33.33%) died among those with new-onset atrial arrhythmia, while five patients (20%) died in the other group. There was no noted thrombotic events such as stroke among the groups and no difference on the duration on mechanical ventilator, ECMO and hospital stay. Conclusion. New-onset atrial arrhythmias are the most common ECG findings during V-V ECMO among patients with severe leptospirosis with an earlier occurrence in this population post-cannulation. Atrial

fibrillation is noted as the most common electrocardiographic finding in this population. This study demonstrated a higher mortality among patients with new-onset atrial arrhythmia during ECMO for severe leptospirosis, with no statistical difference. Objective. This study aims to determine the baseline electrocardiographic (ECG) findings and incidence of new-onset atrial arrhythmia among patients with severe leptospirosis during veno-venous (V-V) ECMO.

LANGUAGE OF ORIGINAL DOCUMENT: English

Kummetha L.C., Vaithiyam V., Kumar K., Goyal S., Sachdeva S.

Leptospira-associated secondary sclerosing cholangitis after acute leptospiral hepatitis

(2026) Tropical Doctor

DOI: 10.1177/00494755261466363

ABSTRACT: Leptospirosis exhibits a broad spectrum of clinical symptoms, ranging from mild fever to severe multiorgan failure. Hepatic dysfunction is common in leptospirosis and typically occurs after the prodromal phase of the disease. Jaundice in leptospirosis is due to impaired hepatocellular bilirubin excretion and bile flow disruption. However, bile duct injury leading to secondary sclerosing cholangitis (SSC) in leptospirosis is rare.

LANGUAGE OF ORIGINAL DOCUMENT: English

Singil S., Ersan S., Mingsar G., Çelik D.

Efficacy of plasmapheresis in severe leptospirosis case

(2026) Anatolian Journal of General Medical Research, 36 (1), pp. 3 - 7

DOI: 10.4274/anatoljmed.2025.17136

ABSTRACT: This study highlighted the efficacy of therapeutic plasma exchange and hemodialysis in a case of leptospirosis presenting with severe acute kidney injury. Leptospirosis is a zoonosis caused by spirochetes; it is more common in the tropics. It can be asymptomatic or present across a broad clinical spectrum, which may lead to mortality. A physically active 84-year-old male patient with a history of hypertension and prostate cancer, was admitted to our hospital with complaints of decreased oral intake for a week, weakness in the lower extremities, and subsequently developed a cough, fever, and jaundice. The patient was conscious, less cooperative than usual or expected, and appeared unwell on physical examination. His blood pressure was 155/94 mmHg, and he had tachycardia (111/min). The sclerae were icteric, and the conjunctivae were pale. Except for the presence of rales at lung bases, other systemic examinations were normal. Laboratory evaluation revealed anemia, thrombocytopenia, hyperbilirubinemia, and increased creatinine levels. Detection of risk factors for leptospirosis transmission in the patient's history, recreational activities such as long forest walks and consumption of contaminated raw vegetables, and compatible clinical findings suggested Weil's disease as the preliminary diagnosis. Leptospira polymerase chain reaction positivity in the urine confirmed the diagnosis. The patient developed oliguria during the course, and we started renal replacement therapy. The emergence of alveolar hemorrhage prompted us to apply plasmapheresis as rescue therapy. We achieved a dramatic renal recovery after ensuring diuresis with two sessions of plasmapheresis. Plasmapheresis as a rescue therapy successfully manages leptospirosis cases that present with multi-organ involvement, with high mortality.

LANGUAGE OF ORIGINAL DOCUMENT: English

Hinds A., Johnson E., Staton G., Njume F.N., Crosby-Durrani H.E., Nally J.E., Carter S., Rigden D.J., Evans N.J.
AlphaFold reveals how pathogenic *Leptospira* use cross-kingdom thiol-disulfide exchange to evade the complement membrane attack complex

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ABSTRACT: Leptospirosis is a globally significant severe infectious disease that affects a range of mammals. To understand its complex aetiopathogenesis, *Leptospira* spp. are classified as pathogenic or saprophytic, with serum resistance a key differentiator of virulence. LIC13259 is a leptospiral surface lipoprotein that binds C8 of the host complement system; however, the molecular basis of this interaction has remained unclear. AlphaFold2 structural predictions, together with protein engineering, biochemical, and immunological validations, revealed that LIC13259 binds specifically to the C8 γ subunit via thiol-disulfide exchange. Binding assays confirmed that LIC13259 from pathogenic, but not saprophytic, *Leptospira* adheres to C8 γ , preventing C8 α binding, and enabling membrane attack complex evasion. Substitution of cysteine-133 with an alanine abolished both C8 γ binding and complement inhibition. Removal (alanine substitution) of the target cysteine from C8 γ prevented pathogenic LIC13259 binding, whereas removing LIC13259 cysteine-108, which forms a predicted intramolecular disulfide bond with cysteine-133, enhanced C8 γ binding. These results identify an unprecedented cross-kingdom intermolecular disulfide bond mediating complement evasion and highlight the value of AlphaFold structural modeling, combined with targeted mutagenesis and biochemical validation, for discovering host-pathogen protein-protein interactions. The discovery of this novel immune evasion mechanism may allow recognition of this unique host-pathogen interaction in a range of diseases, while therapeutics and vaccines targeting such cross-kingdom disulfide-mediated mimicry may enable future infectious disease control. **IMPORTANCE** Leptospirosis is a globally important zoonotic disease of humans and animals, caused by the bacteria *Leptospira*. A central determinant of virulence is the ability for these bacteria to evade complement, a host defense system that assembles the membrane attack complex to eliminate pathogens. Here, we elucidate a novel immune evasion mechanism in which the leptospiral surface protein LIC13259 forms a disulfide bond with complement component C8 γ , preventing binding of C8 α . This interaction disrupts the membrane attack complex assembly and promotes bacterial survival. To our knowledge, this represents the first example of a cross-kingdom disulfide bond mediating bacterial pathogenesis. These findings provide novel insights into leptospiral immune modulation and demonstrate the power of AlphaFold-based structural predictions to reveal unique host-pathogen interactions.

LANGUAGE OF ORIGINAL DOCUMENT: English

Fontana I., Pellegrin Oliveira A., Piovezan U., Juliano Soares R., Viana Campozano R., Figueiredo de Oliveira A., Monteiro Retumba Carneiro L.A., de Moraes Z.M., Gracindo Vinhaes C., Gonçalves Picão V.S.

Leptospirosis in feral swine and cattle herds in the Brazilian Pantanal

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ABSTRACT: Leptospirosis is an endemic zoonotic disease highly prevalent among cattle and wildlife in the Brazilian Pantanal. Some serovars commonly found in suiform species have been reported in bovine livestock, raising concerns about interspecies transmission. To evaluate the risk that feral swine (*Sus scrofa*) could pose to local farms in the Pantanal region of Mato Grosso do Sul, a seroepidemiological survey was conducted during the dry seasons of 2010 and 2011. During the survey, a total of 151 feral swine were captured in the

subregions of Nhecolândia and Abobral. Blood samples were collected for serological analysis, and 30 animals were randomly euthanized for necropsy. Through microscopic agglutination tests (MAT), we identified 108 positive individuals (71.52%), and Icterohaemorrhagiae, Pomona, and Autumnalis were the most frequently detected serovars, which are usually associated with rodents and domestic swine. Pomona and Autumnalis exhibited the highest titers (up to 1:12,400 and 1:1,600, respectively). With Warthin-Starry staining, *Leptospira* sp. were observed in renal tubules of two kidney samples. In parallel, 266 bovine serum samples were tested, with 204 (76.69%) testing positive, predominantly for Hardjo, Tarassovi, and Grippotyphosa serovars, which are generally linked to cattle, domestic swine, and rodents. This represents the most extensive study involving free-ranging feral swine sampling in Brazil and reports the highest leptospirosis prevalence found in these animals over the past four decades. Despite the high seropositivity in feral swine, the limited overlap in predominant serovars suggests a low risk of direct transmission to cattle in the region. Therefore, effective control of leptospirosis in livestock in the Brazilian Pantanal should prioritize internal herd management, minimize indirect exposure to contaminated water sources, and reduce rodent presence around facilities.

LANGUAGE OF ORIGINAL DOCUMENT: English

Gharaibeh M.H., Jarrah S.S., Abutarbush S.M., Al Qudsi F.R., Alzuheir I.M.

Molecular identification and phylogenetic characterization of *Leptospira* spp. in domestic animals from Jordan

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ABSTRACT: Background: Leptospirosis is an emerging zoonotic disease-causing substantial morbidity, mortality, and economic losses worldwide, with over 60,000 human deaths annually. Early diagnosis and molecular identification of *Leptospira* spp. are essential for effective control and prevention. In Jordan, while serological evidence exists, there is a critical lack of molecular data regarding the species circulating in animal hosts. Objectives: This study aimed to detect *Leptospira* infection using nested polymerase chain reaction (PCR) and to characterize the isolates molecularly through sequencing and phylogenetic analysis of the 16S rRNA (rrs) gene. Materials and Methods: DNA was extracted from serum and urine samples collected between January 2020 and May 2021 from 82 animals suspected of leptospirosis, including 80 cattle, one goat, and one dog. Pooled urine from imported feedlot calves and urine from the goat and dog were analyzed. Positive *Leptospira* samples were identified using nested PCR targeting the rrs gene, followed by Sanger sequencing. Phylogenetic analysis was performed using MEGA software, and sequences were compared with reference serovars from GenBank. Results: Three samples (3.5%) were positive for the *Leptospira* rrs gene, producing the expected 299 bp amplicon. Sequencing confirmed *Leptospira* DNA in two samples—one from pooled urine of imported calves and one from a dog serum sample. The sequences were submitted to GenBank as “Uncultured *Leptospira* spp. Canine Jordan 2020” (OK394051) and “Uncultured *Leptospira* spp. Cattle Jordan 2020” (OK394045). Conclusions: This is the first molecular characterization of *Leptospira* spp. in domestic animals in Jordan. The findings underscore the need to include leptospirosis in differential diagnoses of febrile diseases and to enhance surveillance and preventive programs.

LANGUAGE OF ORIGINAL DOCUMENT: English