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Leptospirosis Acquired by Travel-Related Recreational Freshwater Exposure:
A Systematic Review



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Introduction

- **Leptospirosis** is a globally distributed bacterial zoonosis caused by *Leptospira* species
- Transmission occurs through contact with freshwater contaminated by the urine of infected animals, often rodents or livestock
- Recreational freshwater activities during travel (e.g., rafting, kayaking, swimming) pose an underrecognized risk

- Clinical spectrum ranges from mild febrile illness to severe complications (renal failure, pulmonary hemorrhage, death)
- Despite the rise in global adventure travel, the epidemiologic burden, diagnostic patterns, and clinical management of travel-acquired leptospirosis through freshwater exposure remain poorly characterized

Methods

- Databases searched included PubMed, Embase, Scopus, and LILACS, from inception to July 2025
- Search terms included combinations of "leptospirosis", "travel", "freshwater", and keywords related to recreational activities (e.g., rafting, kayaking)
- Screening and extraction were conducted in Covidence by two independent reviewers. Risk of bias will be assessed using GRADE and QUADAS tools

Included	Excluded
Human cases of leptospirosis acquired during travel	Occupational or flood-related exposures
Recreational freshwater exposure (e.g., rafting, swimming, kayaking)	Local (non-travel) exposures
Clinical or microbiological diagnoses	Non-leptospirosis diagnoses
All study types and languages	Animal studies

Table 1. Inclusion and exclusion criteria implemented during screening

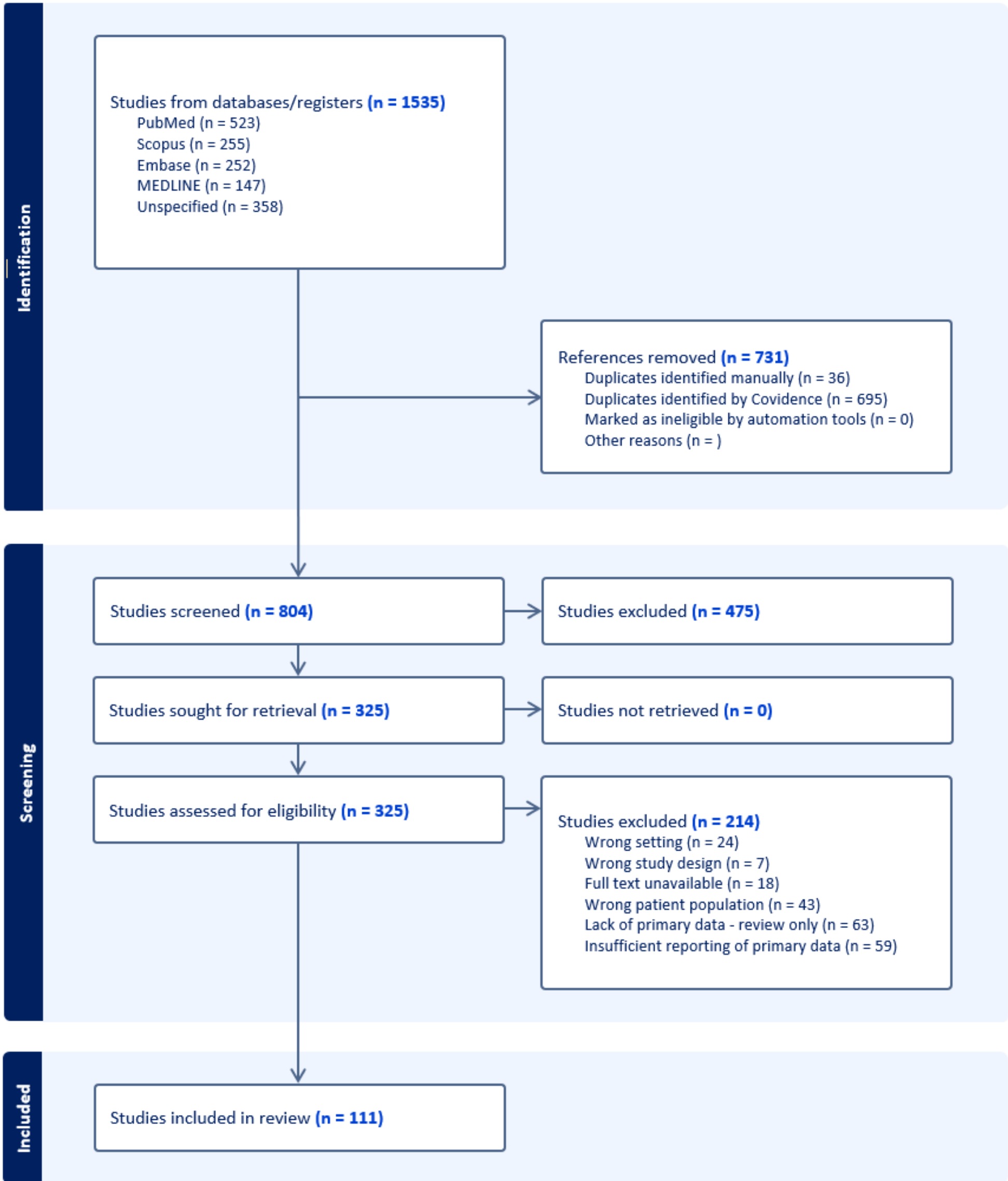


Figure 1. PRISMA Flowchart

Results

Outcome	Variables Extracted
Diagnosis	Clinical vs microbiological diagnosis PCR vs serology vs culture Turnaround time Access to diagnostics-related exposures
Treatment	Empiric vs targeted antimicrobials Oral vs IV ICU admission Dialysis Mortality Adverse events
Prevention	Chemoprophylaxis use (e.g., doxycycline) Adherence, tolerability Accessibility Outcome comparison
Risk Factors	Type of activity (rafting, swimming, triathlons) Environment (rainfall, floods) Geography
Other	Travel origin/destination Demographics Chronic sequelae Cost of care

Table 2. Preliminary outcome measures, and stratifiers, to be assessed during data-extraction.

Discussion

- First known systematic review focused on leptospirosis acquired through recreational freshwater exposure during travel
- Data extraction is currently underway, with over 100 studies currently in review
- Preliminary screening reveals variability in study design, diagnostic methods, and exposure documentation
- **Chemoprophylaxis use** is rarely reported, despite its relevance to high-risk travelers
- Diagnostic confirmation is often based on **serology alone**, with limited access to PCR or culture in many settings
- A lack of standardized reporting on exposure type, environmental context, and clinical outcomes limits comparability across studies
- Findings will inform travel medicine guidelines, support pre-travel counseling, and improve post-travel clinical management of febrile returned travelers

References

