

The Economic Burden of Leptospirosis: A Systematic Review of Direct and Indirect Costs

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Background: Leptospirosis poses a significant global public health and economic burden. However, comprehensive reviews assessing its full economic burden, particularly including direct and indirect costs, remain limited.

Objectives: To systematically review global literature on the magnitude and components of direct and indirect costs associated with leptospirosis.

Methods: This review followed the PRISMA-P 2015 guideline. A comprehensive customized literature search was conducted across PubMed, Web of Science, Scopus, MEDLINE, CINAHL, the Cochrane Library, EconStor and IDEAS with no time limitation. Original economic evaluation studies reporting direct and indirect costs were included, while non-English publications and studies on nonhuman subjects were excluded. Two investigators independently screened titles, abstracts and full texts, and extracted cost data, which were then categorized into direct and indirect costs. All cost values were converted to international dollars (Int\$) for comparison.

Results: The initial search yielded 1,270 articles, with 625 duplicates removed. Following the title and abstract screening, 23 articles underwent full-text screening, and five met the eligibility criteria. These studies, conducted between 2007 and 2021, were based in Indonesia, India, Brazil, Bulgaria and Jamaica. According to the preliminary analysis direct costs ranged from Int\$30.7 (India) to Int\$363,239 (Bulgaria) while indirect costs were Int\$30.08 (India) and Int\$61.54 (Brazil). Mean length of the hospital stays range from 5.4 - 15 days. Reported direct costs included expenses for registration, medical consultations, medications, laboratory tests, consumables, food, accommodation, and transportation while indirect costs included morbidity related productivity loss focusing on absenteeism.

Conclusion: Few studies have comprehensively assessed the direct and indirect costs incurred by leptospirosis patients. This review highlights the significant economic impact incurred by leptospirosis patients, with direct costs well-documented and categorized, and indirect costs mainly limited to wage loss. Hence, future studies should comprehensively assess all cost components across the leptospirosis patient journey.

Keywords: Economic Evaluation, Leptospirosis, Systematic Review