



A Seasonal Leptospirosis Calendar as a Clinical Risk Communication Tool: A Qualitative Study of General Practitioners' Perspectives in Sri Lanka

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ABSTRACT

Background: Leptospirosis is an endemic zoonotic disease in Sri Lanka, with transmission closely linked to seasonal agricultural activities and rainfall patterns. A seasonal leptospirosis calendar was developed as a clinical risk communication tool to support General Practitioners (GPs) in delivering timely preventive advice. This study explored GPs' perspectives on its utility and applicability in routine clinical practice.

Methods: A descriptive qualitative study was conducted using key informant interviews among purposively selected General Practitioners in Monaragala district of Sri Lanka. Data were collected using a semi-structured interview guide and analyzed thematically using an inductive approach.

Results: All participating GPs perceived the leptospirosis calendar as a practical and user-friendly tool that enhanced patient education, improved communication of seasonal risk and supported timely preventive counseling. The alignment with agricultural activities facilitated better patient understanding and engagement. However, time constraints during consultations and limited availability of the calendar were identified as key challenges.

Conclusions: The leptospirosis calendar is a valuable clinical risk communication tool for General Practitioners. Wider dissemination and integration into routine primary care workflows could strengthen preventive practices and reduce disease burden in endemic settings.

KEYWORDS: Leptospirosis, Risk communication, General practitioners, Seasonal calendar, Sri Lanka

INTRODUCTION

Leptospirosis is a globally significant zoonotic disease, particularly prevalent in tropical and subtropical regions where environmental and occupational exposures facilitate transmission.^{1,2} In Sri Lanka, the disease remains endemic, with incidence closely associated with monsoonal rainfall patterns and agricultural practices, especially paddy cultivation.^{3,4}

Transmission occurs through contact with water or soil contaminated with urine from infected animals, predominantly rodents.¹ Seasonal flooding, irrigation activities, and waterlogged environments further increase the risk of exposure, disproportionately affecting rural communities such as farmers and outdoor workers.⁵

Early diagnosis and prompt treatment, along with timely preventive measures—including chemoprophylaxis and behavioral interventions—are essential to reduce morbidity and mortality.⁶ However, leptospirosis presents with a wide range of non-specific clinical manifestations and often mimics other endemic febrile illnesses in Sri Lanka, such as dengue, viral hepatitis, melioidosis, and hantavirus infection.^{7,8} This overlap poses a diagnostic challenge, particularly in primary care settings.

General Practitioners (GPs), as frontline healthcare providers, play a crucial role in early detection, differential diagnosis, and patient education. Accurate diagnosis often depends on eliciting a history of environmental or occupational exposure, such as contact with muddy water or agricultural fields. In the absence of such information, leptospirosis may be overlooked in clinical decision-making. Therefore, practical tools that provide periodic reminders of seasonal risk are important to support clinical suspicion and guide appropriate management.

Risk communication tools tailored to local epidemiological patterns have been shown to improve patient understanding and adherence to preventive measures.^{9,10} In this context, a seasonal leptospirosis calendar was developed to assist General Practitioners in delivering timely, context-specific health advice and to reinforce clinical awareness throughout the year. The development of this tool has been described previously.¹¹ However, its acceptability and utility in routine clinical practice have not been systematically evaluated.

This study aimed to explore the perspectives of General Practitioners on the use of the seasonal leptospirosis calendar as a clinical risk communication tool in the Monaragala district of Sri Lanka.

METHODS

Study Design

A descriptive qualitative study was conducted using key informant interviews (KIIs) to explore GPs' perspectives on the use of a seasonal leptospirosis calendar in clinical practice. The calendar had been introduced to the GPs one year prior as part of an MD thesis.¹¹

Study Setting and Participants

The study was conducted in the Siyambalanduwa Medical Officer of Health (MOH) area in the Monaragala district of Sri Lanka, a predominantly rural setting with a high burden of leptospirosis associated with agricultural activities. Ten Participants were selected using purposive sampling and included well-established and widely recognized General Practitioners engaged in primary clinical care within the area. Eligible participants were those with substantial clinical experience in managing patients at risk of leptospirosis and who were actively involved in providing patient education and preventive counseling. This approach ensured the inclusion of

information-rich participants with relevant expertise and firsthand experience in addressing leptospirosis in routine practice.

Data Collection

Data were collected using a semi-structured interview guide (Annex 1) developed to explore participants' perspectives on the leptospirosis calendar, including its usefulness in patient education, applicability in routine clinical practice, influence on preventive counseling, and perceived barriers and facilitators to its use. Interviews were conducted face-to-face, audio-recorded with informed consent, and transcribed verbatim to ensure accuracy and completeness of the data.

Data Analysis

Data were analyzed using an inductive thematic analysis approach. Transcripts were systematically coded and themes were developed iteratively through repeated review and comparison. The credibility and trustworthiness of the analysis were enhanced through peer debriefing and consistency checks among the research team.

RESULTS

A total of ten GPs participated in the study, with thematic analysis generating six key themes aligned with the interview guide (Table 1; Annex II). Most participants (9/10) had more than 10 years of experience in general practice and reported active involvement in managing patients at risk of leptospirosis. The majority indicated that over 75% of such patients initially seek care from GPs, underscoring their role as first-contact providers. Participants demonstrated a clear understanding of the purpose of the leptospirosis desk calendar, describing it as a structured tool that illustrates seasonal risk patterns and supports the clinicians in recognizing periods of increased exposure.

All participants perceived the calendar as a practical and user-friendly educational aid that facilitated patient communication. It enabled clear explanations of disease risk in relation to seasonal activities, with one participant noting, "It helps us explain risk based on what the patient is doing during that season." The calendar was particularly valued for visually demonstrating time-specific risk, thereby improving patient comprehension; as one GP stated, "We can clearly show when patients are at higher risk." Participants also reported that the calendar was feasible to use during routine consultations, often serving as a quick reference tool to guide discussions, especially during high-risk periods or when patients presented with relevant exposure histories.

The calendar was reported to positively influence preventive counselling practices by acting as a prompt for timely advice on chemoprophylaxis and risk-reduction behaviours. One participant explained, "It reminds us what advice to give at the right time," highlighting its role in improving the timing and consistency of preventive messages. Despite these benefits, participants identified several barriers, including limited availability and insufficient visibility of the current format during consultations. Facilitating factors included its simplicity, ease of interpretation and effectiveness as a visual cue. To enhance its utility, participants recommended wider distribution among both General Practitioners and hospital-based

medical officers, along with modifications such as larger, wall-mounted formats to improve visibility and accessibility in clinical settings.

DISCUSSION

This study demonstrates that the seasonal leptospirosis calendar is a well-accepted, practical and user-friendly risk communication tool among GPs. Participants, most of whom had over a decade of clinical experience and served as first-contact providers for the majority of at-risk patients, reported that the calendar enhanced both patient education and clinical practice. Its ability to present seasonal risk in a clear and structured manner enabled GPs to communicate disease risk effectively in relation to patients' activities and environmental exposure. These findings highlight the value of context-specific tools that bridge the gap between epidemiological knowledge and routine clinical communication.

Risk communication is a cornerstone of infectious disease prevention, particularly for diseases such as leptospirosis, where transmission is strongly influenced by environmental, occupational and seasonal factors.⁹ The findings of this study are consistent with existing evidence that simple, visual and contextually relevant communication tools can improve patient understanding and promote preventive behaviours.^{10,11} Participants emphasized the usefulness of the calendar in explaining time-specific risk and engaging patients in discussions, which aligns with previous research demonstrating that visual aids enhance health literacy and patient engagement.¹² Notably, the alignment of the calendar with local agricultural cycles was identified as a key strength. In settings such as Sri Lanka, where monsoonal patterns and farming activities play a central role in disease transmission, integrating these contextual elements into risk communication strategies has been shown to improve the uptake of preventive measures.^{3,4,13}

Another important finding was the role of the calendar in supporting clinical decision-making and preventive counselling. GPs reported that it served as a timely reminder to provide advice on chemoprophylaxis and risk-reduction behaviours, thereby improving the consistency and timing of preventive messages. Importantly, its use extended beyond suspected leptospirosis cases, facilitating opportunistic health education during routine consultations. This reflects the broader utility of decision-support tools in primary care, which have been shown to enhance adherence to clinical guidelines and strengthen preventive care delivery.¹⁴ The feasibility of integrating the calendar into routine practice further underscores its potential as a low-cost intervention to improve both provider awareness and patient outcomes.

Despite these strengths, several barriers to implementation were identified. Limited availability of the calendar and its relatively small format were the most commonly reported challenges, restricting its visibility and consistent use during consultations. Time constraints, a well-recognized limitation in primary care settings globally, may also hinder optimal utilization.¹⁵ Participants suggested that wider distribution and the introduction of larger, more visible formats such as wall mounted versions could enhance its practicality and impact. Expanding its use beyond general practice to include hospital settings,

particularly medical and paediatric wards, may further increase its reach.

This study has several strengths, including its focus on experienced frontline healthcare providers and the use of qualitative methods to capture in depth insights into usability and clinical relevance. However, it was conducted among a small sample within a limited geographical area, which may affect the generalizability of the findings. Future studies should incorporate a larger and more diverse sample, explore patient perspectives and evaluate the effectiveness of the calendar in improving behavioural outcomes and reducing disease incidence.¹⁶

CONCLUSION

The leptospirosis desk calendar represents a feasible and acceptable tool for enhancing risk communication and preventive practices in primary care. Addressing identified barriers through improved design, wider dissemination and integration into routine workflows will be essential to maximize its effectiveness in endemic settings.

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AUTHORS' CONTRIBUTIONS

A M U P Kumari wrote the main manuscript text & conducted the analysis. All authors provided technical guidance & reviewed the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical approval for the study was obtained in accordance with the Declaration of Helsinki from the Ethical Review Committee, Faculty of Medicine, University of Colombo (Reference: EC-18-066). Permission was obtained from the Regional Director of Health Services (RDHS) Monaragala, to conduct the Key Informant Interviews. Informed written consent was obtained from all study participants.

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CONFLICT OF INTERESTS

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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