

Mobile applications in travel medicine: a systematic review of information quality and surveillance performance

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Background

International travel continues to expand globally, increasing the risk of cross-border transmission of infection. Mobile health applications are increasingly used in travel medicine to deliver destination-specific advice and support surveillance of travel-related illness, yet their characteristics and evidence foundations remain incompletely understood.

Methods

We conducted a systematic review following PRISMA 2020 (PROSPERO 2025 CRD420251130040). Studies published from January 2015 to November 2025 evaluating mobile applications were included. Major bibliographic databases were searched without language restriction. Two reviewers independently screened studies and extracted key application features and evaluation outcomes. Due to heterogeneity, findings were synthesised narratively and visualised using Sankey evidence maps.

Results

Eighteen studies met the inclusion criteria, mostly prospective cohort or pilot studies in travellers. Eight apps were described in these studies; 5 were surveillance-only, 2 combined travel health information with surveillance, and 1 focused exclusively on information delivery. Core features included location tracking (7/8), real-time monitoring (7/8), and symptom reporting (7/8). Privacy safeguards were reported in all applications, with secured data storage and ethical approval described for all apps. Additional functionalities included environmental monitoring (4/8), push notifications (7/8), medication management (3/8), remote consultation (1/8), and photo or media uploads (1/8). Most evaluations focused on feasibility and short-term performance metrics such as uptake, reporting adherence, and symptom monitoring.

Conclusion

Current digital tools in travel medicine are largely surveillance oriented. Increased emphasis on comprehensive, evidence-based travel health information is indicated for travellers. M-health data could be more strongly integrated into travel medicine practice and public health surveillance systems.