OPERATIONAL GUIDE



Early Warning and Response System (EWARS) for Dengue Outbreaks



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Operational guide: Early Warning and Response System (EWARS) for dengue outbreaks

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FOREWORD

Dengue outbreaks threaten the stability of national health systems worldwide. Every year, late detection and inadequate response mechanisms compound the effects of rapid dengue transmission. Although outbreak alert indicators exist, the means to deploy them in early warning systems is often lacking.

Within this context, a programme led by TDR, the Special Programme for Research and Training in Tropical Diseases, conducted multi-country research into alarm signals for outbreaks and their use within early warning systems. In line with the prevailing literature,^{1,2,3} alarm variables such as probable dengue cases, mean temperature (and, to a lesser extent, rainfall and humidity) all evidenced predictive abilities.⁴ However, it was clear that countries lacked the requisite skills and resources to deploy these alarm signals in a predictive, operational way. It was on this basis that an accessible, adaptable and user-friendly early warning system was developed.

The aim of the *Early Warning and Response System (EWARS) for Dengue Outbreaks:* operational guide is to provide programme managers with a user-friendly tool that can: (i) analyse and draw conclusions from historic dengue datasets; (ii) identify appropriate alarm indicators that can sensitively and specifically predict forthcoming outbreaks at smaller spatial scales; and (iii) use these results and analyses to predict and build an early warning system to detect dengue outbreaks in real-time. Together, these three components build technical capacity and provide a standardized methodology for predicting dengue outbreaks in countries where skills and resources are currently constrained.

This guide was produced by TDR together with the World Health Organization's Neglected Tropical Diseases (WHO/NTD) and WHO regional offices in the context of a European Union-financed research programme, the International Research Consortium on Dengue Risk Assessment, Management and Surveillance (IDAMS), to develop an evidence-based, early warning system for outbreak detection and management of dengue fever outbreaks.

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