

Special Issue

Advances in Infectious Disease Surveillance: Climate-Sensitive, Biostatistical, and Simulation Modeling Approaches

Message from the Guest Editor

In most health systems, vast daily data are collected but rarely used to guide policy and practice. Routine infectious disease surveillance reports, hospital and clinic records, and cross-sectional surveys already contain important information about how infections spread, which populations are at risk, and how well interventions work. This Special Issue invites studies that turn such real-world data into evidence for action. We are particularly interested in work that demonstrates how data science, AI, and large multiscale computational platforms can establish robust data pipelines for modeling systems—ultimately driving precise spatio-temporal risk assessments and shaping impactful public health policies. We welcome contributions that explore climate- and environment-sensitive transmission, including the roles of weather, climate variability, or environmental conditions in shaping infectious disease dynamics. Studies that focus on early outbreak detection, anomaly or signal detection in surveillance data, and simulation and scenario modeling to test alternative control strategies, estimate potential impacts, or reduce cases and mortality are especially encouraged.

Guest Editor

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