



Call for Manuscripts

Special Issue on

*Advances in modelling for
integrated vector control and
disease risk management*

Guest Editors:

Daniele Da Re and Kamil Erguler

Vector-borne diseases (VBDs) represent a significant challenge to global public health, as they account for a substantial burden of morbidity and mortality worldwide. The dynamics of VBDs are complex, driven by interactions among vectors, hosts, pathogens, and the environment. Recent advances in mathematical modelling and machine learning techniques have revolutionised our ability to explore and predict these dynamics, offering innovative tools for understanding the spread, control, and potential elimination of these diseases.

Dynamical modelling approaches, including compartmental models, stochastic simulations, and agent-based frameworks, have provided valuable insights into the transmission patterns of VBDs. Meanwhile, machine learning techniques, leveraging large datasets from surveillance systems, satellite observations, and genomic studies, have emerged as powerful complements to traditional models. Together, these tools enable researchers to capture non-linear interactions, assess spatial and temporal patterns, and predict disease risk with increasing accuracy.

In this Special Issue dedicated to "**Advances in modelling for integrated vector control and disease risk management**", we call for cutting-edge, interdisciplinary contributions that focus on the application of mathematical modelling and machine learning to better understand and manage vectors and vector-borne diseases (V/VBD). Contributions are encouraged to address various aspects of vector distribution and dynamics, disease mechanisms and spread, and designing effective control strategies across diverse ecological and epidemiological contexts.

We invite submissions related to, but not limited to, the following topics:

- Development and application of dynamical models (e.g., compartmental, stochastic, and agent-based models) to study V/VBD transmission.

- Integration of environmental, behavioural, and genomic data into V/VBD models.
- Machine learning and artificial intelligence for predicting vector distribution and disease outbreaks.
- Modelling the impact of climate change, land use, and urbanisation on V/VBD dynamics and transmission.
- Novel methodologies for linking mathematical models with big data and ecoinformatics tools.
- Evaluation of control measures (e.g., vector management, vaccination, and treatment strategies) using dynamical models.
- Spatio-temporal analysis of V/VBD dynamics using advanced statistical or computational methods.

We encourage researchers from diverse fields, including epidemiology, ecology, mathematics, computer science, and public health, to contribute their work to this Special Issue. Authors with ideas for potential review articles or collaborative studies are invited to contact the Guest Editors to discuss the relevance and suitability of their topics.

We look forward to your innovative and multidisciplinary contributions!

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Guest Editors

Manuscript Submission Information

Manuscripts should be submitted online at [Editorial Manager](#)[®] by registering and logging into this website. Select the Special Issue on the list once you have completed the submission process. Manuscripts shall be formatted according to the [Instructions for Authors](#) and can be submitted until the **deadline of November 30th, 2025**. All submissions that pass pre-check are peer-reviewed. Accepted papers will be published continuously in the journal (as soon as accepted and pdf-printed) in the [JEMCA Advance Articles section](#), and later assembled together in the Special Issue. Research articles, review articles as well as short communications are invited.

Submitted manuscripts should not have been published previously, nor be under consideration for publication elsewhere (except conference proceedings papers). All manuscripts are thoroughly refereed through a single-blind peer-review process. A guide for authors and other relevant information for submission of manuscripts is available on the Instructions for Authors page. Submitted papers should be properly formatted and use good English (British spelling). The Article Processing Charge (APC) for publication in this open-access journal is 800 euros without VAT, and discounts are offered to EMCA members.