

Strengthening Arboviral Disease Preparedness through Nursing Education in Italy

OMAR ENZO SANTANGELO¹, SANDRO PROVENZANO², LUANA MARIA AMATO³, SIMONA FANULI³, ANNA SOLE PIZZAMIGLIO¹, CARLOTTA VELLA¹, GIUSEPPE D'ANNA⁴, ANTONIO TERRANOVA⁴

¹ Territorial Health and Social Care Authority of Lodi, ASST Lodi, Lodi, Italy; ² Local Health Unit of Trapani, ASP Trapani, Trapani, Italy; ³ Villa Sofia-Cervello United Hospitals di Palermo, Palermo, Italy; ⁴ Department of Health Promotion, Maternal-Infant, Internal Medicine and Specialization of Excellence "G. D'Alessandro", University of Palermo, Palermo, Italy

Dear Editor,

Arboviral diseases, including those caused by dengue, chikungunya, Zika, West Nile, Usutu, tick-borne encephalitis, and Toscana viruses, are emerging as a growing public health concern in Italy and across Europe [1]. Climate change, environmental modifications, increasing international mobility, and the expansion of competent vectors, particularly *Aedes albopictus*, are reshaping the epidemiology of vector-borne diseases and facilitating the occurrence of autochthonous transmission events in areas previously considered at low risk. Among the arboviruses of greatest public health relevance in Italy are dengue virus, chikungunya virus, Zika virus, West Nile virus, Usutu virus, tick-borne encephalitis virus, and Toscana virus, all of which are responsible for human disease and require specific surveillance and prevention strategies [1]. Recent outbreaks of dengue and the increasing burden of West Nile virus infection in Italy highlight the need for enhanced preparedness strategies capable of addressing this evolving epidemiological scenario [2, 3]. In response to these emerging challenges, Italy has implemented a National Plan for the Prevention, Surveillance, and Response to Arboviral Diseases, which provides an integrated framework for epidemiological surveillance, laboratory diagnosis, vector control, and coordinated public health interventions [4].

The response to arboviral threats relies not only on surveillance systems and vector-control programmes but also on a healthcare workforce adequately trained to support prevention, early detection, risk communication, and community engagement. In this context, nurses represent a key resource for public health preparedness. As the largest group of healthcare professionals, they contribute substantially to health promotion, community-based interventions, surveillance activities, and the implementation of preventive measures during infectious disease outbreaks.

Despite the increasing relevance of arboviruses in Italy, education on emerging vector-borne diseases remains limited within many undergraduate nursing programmes. This educational gap may reduce future nurses' preparedness to contribute effectively to surveillance systems, support public health responses, and communicate preventive measures to the population. Evidence from nursing education research suggests that knowledge and attitudes toward emerging infectious diseases significantly influence infection-management

behaviours and professional readiness [5].

Strengthening arboviral disease education within undergraduate nursing curricula could therefore represent a valuable investment in health-system resilience. Educational programmes should move beyond the exclusive focus on clinical manifestations and include epidemiological surveillance, vector ecology, environmental determinants of transmission, health communication, digital surveillance tools, and outbreak preparedness. In particular, the growing role of infodemiology and infoveillance in monitoring public awareness and information-seeking behaviours offers additional opportunities for strengthening public health responses to emerging arboviral threats [6].

Furthermore, arboviral disease prevention increasingly requires a One Health approach that recognizes the interconnectedness of human, animal, and environmental health. Integrating these concepts into nursing education may foster interdisciplinary competencies that are essential for addressing contemporary and future public health challenges [7].

The importance of reinforcing preparedness is further supported by the Italian epidemiological situation. According to the integrated national surveillance system coordinated by the Istituto Superiore di Sanità, from the beginning of surveillance in 2002 to 29 October 2025, 773 confirmed cases of West Nile virus infection and 72 associated deaths were reported in Italy, highlighting the persistent and increasing impact of arboviral diseases on public health [8].

As arboviruses continue to expand their geographical distribution and public health impact, nursing education must evolve accordingly. Strengthening competencies in arboviral disease prevention, surveillance, and preparedness among nursing students represents an important step toward building a more resilient healthcare workforce and supporting effective public health responses to emerging vector-borne diseases.

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Conflict of interest statement

The authors declare no competing interests.

Authors' contributions

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Correspondence: Omar Enzo Santangelo, Territorial Health and Social Care Authority of Lodi, ASST Lodi, Lodi, Italy. E-mail: omarenzosantangelo@hotmail.it

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