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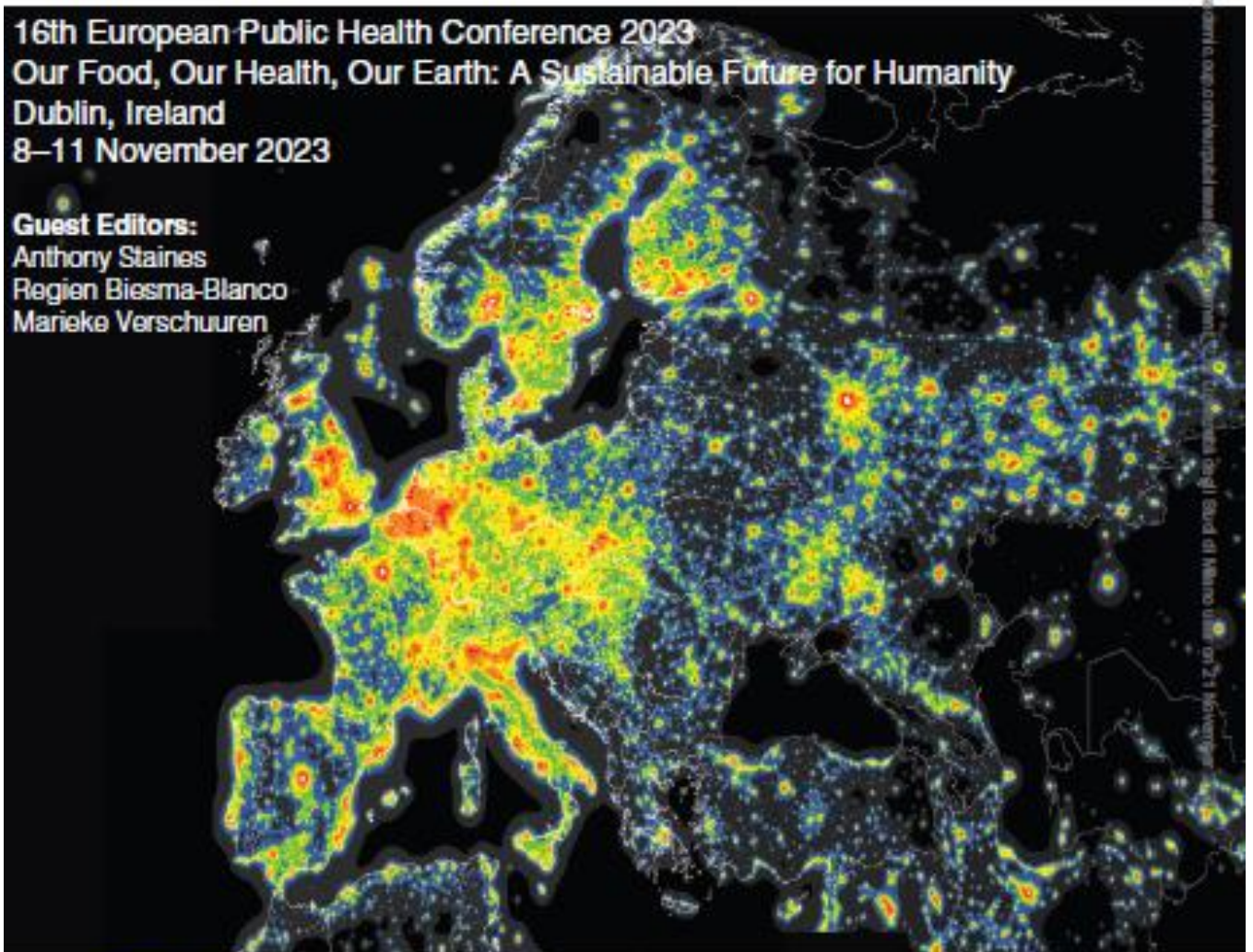
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**16th European Public Health Conference 2023**  
**Our Food, Our Health, Our Earth: A Sustainable Future for Humanity**  
**Dublin, Ireland**  
**8–11 November 2023**

**Guest Editors:**  
Anthony Staines  
Regien Biesma-Blanco  
Marieke Verschuuren



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Volume 33 Supplement 2

## SUPPLEMENT

### 16TH EUROPEAN PUBLIC HEALTH CONFERENCE

Our Food, Our Health, Our Earth: A Sustainable Future for Humanity  
Dublin, Ireland  
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#### ABSTRACT SUPPLEMENT

Guest editors: Anthony Staines, Regien Blesma-Blanco, Marieke Verschuuren

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## Poster Displays

# DA. One Health: health threats to people, animals and ecosystems

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One Health strategies for addressing antimicrobial resistance: an exclusive emphasis on Bulgaria

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Antimicrobial resistance (AMR) is a public health challenge, primarily driven by the excessive use of antibiotics (ABs). While the European Union (EU) has successfully reduced ABs consumption since 2009, Bulgaria (BG) reports an increase in ABs use in both community and hospital settings. According to the 2021 Eurobarometer, the consumption rate of ABs among Bulgarians is twice as high as that in Germany, with a significant number taking ABs without a prescription. Moreover, only 41% of Bulgarians are aware that ABs do not kill viruses, and 39% took ABs for COVID-19 (as compared to 1% in Finland). This highlights an urgent need for interventions to tackle AMR in BG, using One Health (OH) approaches that consider the complex interplay between human, animal, and environmental health. The data presented aims to alert a wide range of stakeholders that AMR is not just a clinical or national issue but it has cross-border implications. It emphasizes the role that everyone must play in preserving the efficacy of ABs.

Strategies for sustainable OH solutions: Researchers and educators should incorporate AMR and OH in their core responsibilities, providing relevant training and raising community awareness regarding prudent ABs use. Encouraging integrative medicine approaches, including traditional practices such as phytotherapy, can help delay the ABs prescriptions. Research is also necessary to support OH legislative changes that restrict ABs sales. Particularly, Bulgaria is among the few EU countries that have not approved an OH Action Plan against AMR or an inter-sectoral OH mechanism between veterinary, food, and health authorities. OH remains relatively unfamiliar in BG. Despite this, there is a political will to develop national OH policies, as demonstrated in the recently adopted National Health Strategy 2030. Urgent actions are needed to address AMR in BG. Using EU's AMR activities as a model, this analysis is a step towards a regional OH project.

Key messages:

- AMR is a pressing public health problem in Bulgaria with cross-border implications. One Health strategies are needed urgently to address it. EU's AMR activities can be a model.
- Bulgarian researchers, educators, and policymakers must make AMR their central responsibility. OH Action Plan against AMR and an inter-sectoral collaboration are the keys to success.

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SARS-CoV-2 in freshwaters used for irrigation in the agro-urban environment of Milan (Northern Italy)

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Background:

During the COVID-19 pandemic, water has played a key role in epidemiological monitor of SARS-CoV-2. Our study aimed to verify if flood spillways activity during heavy rain events could be a source of SARS-CoV-2 contamination of a rural canal and consequently of human infection.

Methods:

A total of 12 water samples (2L) were collected in four sampling campaigns conducted in 2022 (April, September, November, and December) during heavy rainfall. An automated sampler located in an irrigation stream collected 250ml of water at intervals of 10' for 80' since the spillways activation (sample A), then every 20' for 160' (sample B), and finally every 30' for 240' (sample C). Each sample was pre-filtered and concentrated by tangential flow ultrafiltration according to an in-house protocol. The presence of SARS-CoV-2 and Pepper Mild Mottle Virus (PMMoV, internal control) RNA was investigated by real time RT-PCR. SARS-CoV-2 viability was tested on VERO E6 cell culture, verifying the cytopathic effects and the viral load by real time RT-PCR every 24 hours for 7 days.

Results:

PMMoV RNA was detected in all specimens assessing RNA quality. Although SARS-CoV-2 RNA was detected in all samples, except in those of November and in April sample C, there was no evidence of cytopathic effect or active replication in cell culture. RNA concentrations were generally low (0.27-6.95  $g/\mu l$ ) but slightly higher in samples A than in B and C.

Conclusions:

Despite the limited number of samples collected during the experimental campaign and due to the severe drought that affected Northern Italy, our results suggest that spillways activation could be a source of SARS-CoV-2 contamination in freshwaters, but there was no evidence of risk to human health. The detection of small concentrations may be associated with the circulation, during the monitoring, of the Omicron variants, which rarely cause gastrointestinal symptoms.

Key messages:

- Spillways activation could be a source of SARS-CoV-2 contamination.
- Both environmental diffusion and infectivity of SARS-CoV-2 were investigated to better understand the risk of disease for humans.