

# EUROPEAN JOURNAL OF PUBLIC HEALTH

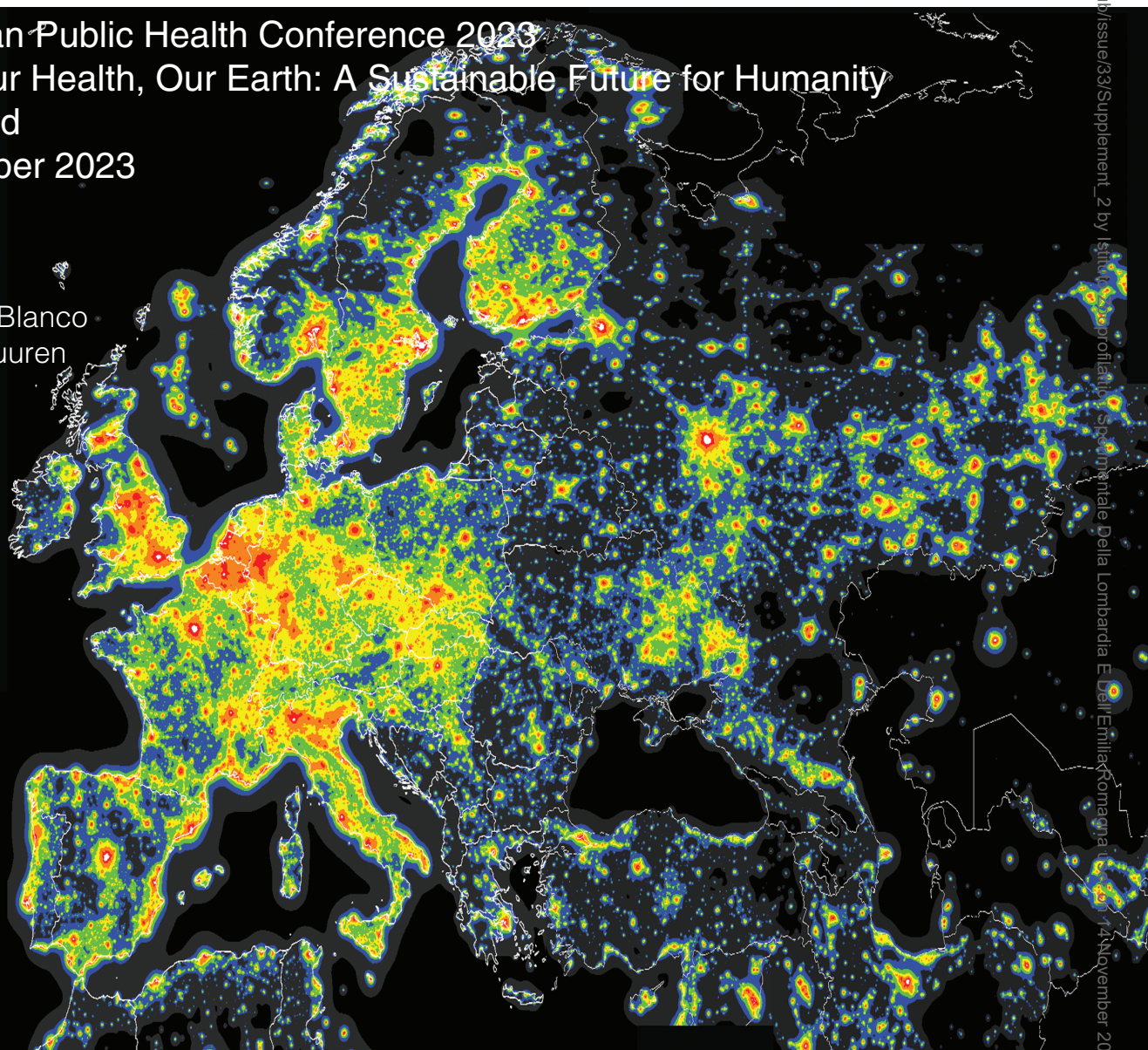
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16th European Public Health Conference 2023  
Our Food, Our Health, Our Earth: A Sustainable Future for Humanity  
Dublin, Ireland  
8–11 November 2023

**Guest Editors:**

Anthony Staines  
Regien Biesma-Blanco  
Marieke Verschuuren



# EUROPEAN JOURNAL OF PUBLIC HEALTH

Volume 33 Supplement 2

## SUPPLEMENT

### 16TH EUROPEAN PUBLIC HEALTH CONFERENCE

Our Food, Our Health, Our Earth: A Sustainable Future for Humanity  
Dublin, Ireland  
8–11 November 2023

#### ABSTRACT SUPPLEMENT

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

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#### Disclaimer

This supplement includes the abstracts as submitted and corrected by the authors. All abstracts have been reviewed by the International Scientific Committee. EPH Conference is not responsible for any errors.

## Poster Displays

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

Abstract citation ID: ckad160.1026

### 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 30% 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.

Abstract citation ID: ckad160.1027

### 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 gc/μL) 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.

**Abstract citation ID: ckad160.1028****A cluster of Histamine Fish Poisoning associated with the ingestion of tuna**

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Histamine fish poisoning, also known as scombroid poisoning, arises from the improper handling and refrigeration of scombroid fish that contain naturally occurring histidine such as tuna, mackerel and swordfish. Histidine is converted to histamine when these fish inadequately chilled. Histamine fish poisoning is generally associated with levels greater than 500 mg/kg but poisonings have been observed at lower levels (e.g. >200 mg/kg). European legislation states that scombroid fish species should be tested for the presence of histamine and mean values should be <100mg/kg. The authors report an outbreak of probable histamine fish poisoning in three individuals following ingestion of tuna. The tuna was bought in a local store. It was cooked and eaten by the 3 cases at home for their evening meal. Symptom onset occurred between 30 minutes and two hours after ingestion and included flushing, facial/lip swelling, an itchy rash and palpitations. All three cases attended the Emergency Department (ED) requiring oral or Intravenous (IV) anti-histamine and/or oral steroids and IV fluids. Fortunately, all cases recovered fully and were discharged from the ED. The public health actions that were taken, crucially included rapid coordination with the Environmental Health Service (EHS). Temperature control is the crucial step in preventing histamine fish poisoning. The Food Safety Authority of Ireland and the Irish Sea Fisheries Board highlight the importance of proper handling and chilling of fish from time of catch through to transportation, processing, storage and distribution. This report highlights the importance of timely and coordinated public and environmental health responses to histamine fish poisoning cases. National Clinical Guidelines are currently being developed in conjunction with the Irish Association for Emergency Medicine (IAEM) on the Management of Histamine Fish Poisoning/Histamine Poisoning in Adult Patients.

**Key messages:**

- Environment and Health.
- Food governance.

**Abstract citation ID: ckad160.1029****Point prevalence survey on healthcare-associated infections in Apulian region, Italy, 2022-2023**

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Contact: francesca.fortunato@unifg.it**Background:**

Since 2011-2012, the ECDC coordinates the measurement of Healthcare-associated infections (HAIs) and antimicrobial use (AMU) in European acute-care hospitals through repeated point prevalence surveys (PPS) every five years. Here we present the main results of the 3rd ECDC-PPS conducted in Apulia region, Italy, during November 2022, in comparison as a benchmark with data from Italian PPS 2016-2017.

**Methods:**

The ECDC protocols were applied. Prevalence of HAIs and AMU was expressed as percentages. Proportion of isolates resistant to selected AMR markers were also calculated.

**Results:**

Twenty-four/39 Apulian hospitals provided data on 3,710 patients. The prevalence of patients with  $\geq 1$  HAI was 9.9% (PPS-2016-17:8.03%). The highest prevalence was recorded in

rehabilitation wards (31.6%; PPS-2016-17:16.4%), in large hospitals (10.5%; PPS-2016-17:9.3%), among elderly (11.2%; PPS-2016-17:9.1%), males (11.1%; PPS-2016-17:7.9%), and patients with a rapidly fatal McCabe score (28%; PPS-2016-17:18.8%). The most reported types of HAI were pneumonia (19.8%; PPS-2016-17:22.8%) and urinary tract infections (18.3%; PPS-2016-17:18%). Prevalence of patients with  $\geq 1$  antimicrobial was 49.3% (PPS-2016-17:44.5%). At least a positive microbiological result was reported for 66.1% of the HAIs (N = 244/369; PPS-2016-17:53.8%). *Klebsiella pneumoniae* (14.9%; PPS-2016-17:10.4%) and *Escherichia coli* (9.8%; PPS-2016-17: 13%) were the most frequently isolated microorganisms. The susceptibility tests were available for 56% of microorganisms (N = 177/316) and a resistant result was reported for 50.3% (PPS-2016-17:42.3%) of tests.

**Conclusions:**

HAI, AMU, and AMR prevalence estimated in Apulia region was higher, when compared with previous national PPS. Efforts in implementing antimicrobial stewardship and reducing HAIs should be established.

**Key messages:**

- HAI and AMR remain a major public health threat in Apulia region, particularly for *K. pneumoniae* and *E. coli*.
- Frail patients bear a greater burden of illness.

**Abstract citation ID: ckad160.1030****Potential zoonotic agents in sea turtles: Chlamydia species and Listeria monocytogenes**

Filippo Barsi

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**Background:**

Sea turtles are well recognized sentinels of marine environment as well as carrier of pathogens and contaminants. Chlamydial species have been described in reptiles, but scarce data regarding sea turtles are available in literature (Pace et al., 2022). Hitherto, only one case of listeriosis has been described in marine reptiles (Di Renzo et al., 2022). This study reports the detection of Chlamydia species and Listeria monocytogenes in loggerhead sea turtles (*Caretta caretta*), suggesting the role of these animals as carriers of potential zoonotic agents.

**Methods:**

In 2022, a total of 11 sea turtles found stranded along Emilia-Romagna coast, Northwestern Adriatic Sea, were subjected to post mortem investigation. Cloacal swabs were collected from 10 of the investigated animals and screened for Chlamydiaceae family by qPCR targeting 23S rRNA gene, followed by confirmation via 16S rRNA fragment sequencing. For positive samples, Chlamydia species identification was performed by species-specific qPCR for *C. abortus*, *C. pneumoniae*, *C. pecorum*, *C. psittaci*. One subject showed internal organs disseminated with multiple nodular lesions that were sampled for histopathology analyses, alongside microbiological examination. The cultured isolates were identified by MALDI-TOF (MALDI Biotyper; Bruker Daltonics Inc).

**Results:**

In six out of 10 cloacal swabs Chlamydiaceae DNA was demonstrated by qPCR and confirmed by sequencing of 16S rRNA, but species identification was not achieved. In the turtle with nodular lesions, histopathology revealed the presence of granulomas: the Ziehl-Neelsen stain was negative for acid-fast organisms. *L. monocytogenes* was isolated from heart and liver and listeriosis was diagnosed.

**Conclusions:**

The results highlight how sea turtles can be carriers, symptomatic or not, of pathogens relevant for public health.



Given the zoonotic potential of these microorganisms, particular precautions are recommended especially for professionals handling these animals.

#### Key messages:

- Sea turtles can play an active role as carriers of possibly pathogenetic microorganisms.
- Further studies of molecular identification of *Chlamydia* spp. from sea turtles are needed in atypical strains.

#### Abstract citation ID: ckad160.1031

#### Improving vector-borne disease control in Albufeira

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The Albufeira Health Centre (CSA) comprises various functional units within primary healthcare. Recognizing the limited awareness of colleagues regarding the Vector Surveillance Network (REVIVE), responsible for entomological surveillance of mosquitoes, ticks, and sandflies, the Public Health Unit (USP) initiated a project to improve coordination and knowledge sharing. Implemented in April 2023, the project involved a multidisciplinary team. Informational materials on vector surveillance and control, clinical guidance for common vector-borne diseases (VBDs), tick collection protocols, and specimen registration forms were distributed. A video highlighting entomological surveillance and strategies for prevention and control was disseminated. To date, the project has recorded 45 views of the video (51%). A questionnaire distributed among the target population revealed that only 20% had knowledge of the epidemiological importance of vectors in the Algarve region. None were familiar with REVIVE or its work. Furthermore, participants were not acquainted with the *Aedes albopictus* mosquito species. Regarding ticks, 20% felt confident in tick removal, but none were aware of the tick genera in the Algarve region. Only 20% were aware of notifiable vector-borne diseases through SINAVE. Training sessions on this topic were suggested. The project emphasized the significance of communication and collaboration among healthcare professionals in the prevention and control of vector-borne diseases. It highlighted the need for continuous education on VBDs, surveillance techniques, and control measures. This innovative project can serve as a model for healthcare centres and countries, contributing to global efforts to improve the response to vector-borne diseases. The project's outreach extended to the Municipal Albufeira Animal Welfare Centre. A new questionnaire will be distributed to gather additional insights and enhance the impact of the project.

#### Key messages:

- The project aims to improve integration of primary healthcare services for vector-borne diseases, increasing awareness and training for healthcare professionals.
- This innovative project promotes prevention culture and replicable adaptations for improved response to vector-borne diseases.

#### Abstract citation ID: ckad160.1032

#### The next-generation tools for risk assessment and precision food safety in the One Health continuum

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Sequencing technologies and bioinformatics are transforming microbiology and their applications, including aspects of food

quality and precision food safety and description of microbial communities in the One Health context. The use of these protocols includes, among others, a deep understanding of the genomes of microorganisms in pure culture using whole genome sequencing and importantly, metagenomics has allowed the extensive comprehension of the microbiota and microbiome of samples. Microbial communities from different sources (clinical samples, environment, food-producing animals) have increasingly been studied to describe the genetic diversity, functionality, and succession of food-borne pathogens and for studying functional microorganisms used for producing novel foods and also using fermentation. This study presents the methods used for the description of microbial communities in a model fermented food, including culturing with a novel in situ culturing approach, full-length 16S rRNA gene sequencing, and shotgun metagenomic sequencing with computational enrichment. Several microorganisms were identified both in culture and as high-quality metagenome-assembled genomes and included prominent probiotic species of the genus *Gluconobacter*, *Liquorilactobacillus*, *Lactiplantibacillus*, *Lentilactobacillus* and *Lacticaseibacillus* that have potential health benefits and applications in food production and environment health enhancement. These tools can revolutionise risk assessment approaches, allowing for the pinpointing of contamination events, pathogens, antimicrobial resistance spread, and description of unknown beneficial microorganisms, as in this model study. The integration of these methods in the One Health continuum will allow the precise connection of samples from clinical settings, animals, plants, and their shared environment, achieving a holistic approach to food safety and public health.

#### Key messages:

- technologies are changing food safety by enabling comprehensive analysis of microbiome. This can aid in identifying contamination events, pathogens, and AMR spread, and promote One Health integration.
- Use of sequencing in foods, enables the identification of novel microbial species, providing valuable insights into the functional microorganisms for production and their potential health benefits.

#### Abstract citation ID: ckad160.1033

#### Cystic echinococcosis in humans and ruminants in Portugal: a one health approach

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#### Background:

Cystic echinococcosis or hydatid disease is an important parasitic zoonosis for public health, although neglected. Despite being a mandatory notification disease both in humans and animals, data in Portugal are almost absent. A collaborative One Health retrospective nationwide study was conducted, bringing together the expertise of public health doctors, veterinarians and epidemiologists.

#### Methods:

Human hospitalizations caused by cystic echinococcosis and slaughterhouse records of echinococcosis from bovine, ovine and caprine species were obtained. Poisson loglinear regression



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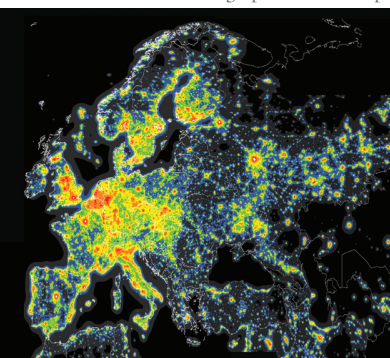
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## Abstract Supplement

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