

MediPIET Summary report of work activities

Arlinda Ramaj

Albania, Cohort 6 (2023)

Background

1. About MediPIET

The Mediterranean and Black Sea Programme for Intervention Epidemiology Training (MediPIET) aims to enhance health security in the Mediterranean and the Black Sea region by supporting capacity building for prevention and control of natural or man-made threats to health posed by communicable diseases. It is a competency-based in-service two-year fellowship during which selected fellows conduct projects and field investigations at a MediPIET training site in their home country and attend MediPIET modules.

Since mid-2021, MediPIET is implemented by ECDC as a part of the [EU Initiative on Health Security](https://www.ecdc.europa.eu/en/training-and-tools/training-programmes/fellowships/medi Piet). You can find more information about the programme at: <https://www.ecdc.europa.eu/en/training-and-tools/training-programmes/fellowships/medi Piet>

2. Pre-fellowship short biography

Arlinda Ramaj is a public health specialist with a Master of Science in Public Health from the University of Medicine in Tirana, Albania. Since 2016, she has been working at the Tirana Local Healthcare Unit, within the Department of Epidemiology and Environmental Health. Her work primarily focuses on environmental health, with a particular emphasis on water safety. She has also played an active role in managing public health emergencies, including the 2018 measles outbreak, the COVID-19 pandemic, and others. Prior to this, Arlinda worked in the statistics department of the Local Medications Authority. She has also participated in various national and international public health workshops.

Fellowship

On 25 September 2023, Arlinda Ramaj started her MediPIET fellowship at the Institute of Public Health, Tirana, Albania. This report summarises the work done during the fellowship.

National supervisor(s): Kujtim Mersini

Scientific coordinator(s): Nana Mebonia, Netta Beer, Amy Mikhail.

Fellowship projects

3. Surveillance

Implementation of event-based surveillance system in Tirana

Background and rationale: Event-based surveillance (EBS) is a real-time system for detecting unusual public health events, such as outbreaks or emerging diseases that may not be captured through traditional indicator-based systems. EBS leverages informal and non-traditional sources, including community groups, media, schools, laboratories, and animal health networks. It enhances early detection, rapid response, and intersectoral collaboration, aligning with the One Health approach by integrating human, animal, and environmental health signals.

Aim and objectives: This project aimed to pilot an EBS system in Tirana to strengthen early warning capacity. Objectives included:

1. assessing the existing surveillance system;
2. developing an operational framework and reporting tools;
3. training healthcare staff;
4. piloting EBS in three healthcare centres (HCCs 4, 6, and Paskuqan);
5. coordinating event follow-up; and
6. evaluating the pilot to inform future improvements.

Methods: The pilot was implemented at three healthcare centres in Tirana — HCC 4, 6, and Paskuqan — under the leadership of the Institute of Public Health (IPH). A Technical Working Group (TWG) comprising national and local health representatives was set up to guide implementation. TWG members were trained on EBS principles and cascaded training to frontline healthcare staff. The system used the electronic SISI platform to gather signals from healthcare workers, automated media screening, and public submissions via website, app, and SMS. Authorised personnel verified and entered signals into SISI, while supervisors carried out triage and escalated events for the appropriate public health response. Awareness materials and stakeholder meetings supported engagement. Although this was a pilot, the system was designed with national scalability in mind.

Conclusion and recommendation: The Tirana pilot demonstrated that EBS can significantly enhance detection and response to health threats. For national roll-out, key priorities include continued staff and community sensitisation, targeted training, appointment of EBS focal points at healthcare facilities, enhanced intersectoral data-sharing and use of pilot lessons to refine system design and ensure sustainable, scalable implementation.

Role and outputs: The fellow carried out a literature review (published articles, national reports, and international guidelines) and needs assessment; drafted a protocol in collaboration with the TWG; organised and delivered training sessions for the staff of three selected healthcare centres and the Local Healthcare Unit; acted as a coordinator for Tirana, overseeing the filtering and triage of reported events; allocated tasks to local public health staff for event verification and follow-up, and performed an early stage evaluation of the implementation by collecting feedback for system improvements.

Supervisor(s): Kujtim Mersini

Support: Fiona Konomi

Status: Completed.

4. Outbreaks

Investigation of a *Salmonella enterica* outbreak in a nursery in Tirana, Albania: epidemiology, implications, and control measures

Background: *Salmonella* is a major cause of diarrhoeal diseases, transmitted through contaminated food and via the faecal-oral route. We report an outbreak of *Salmonella enterica* at a nursery in Tirana, Albania.

Methods and objectives: Following notification of a laboratory-confirmed case on 25 October 2023, a retrospective cohort study was conducted among children and staff at a nursery attended by 120 children aged 6–36 months and 33 staff members. Parents and staff were interviewed to collect demographic data and information on clinical symptoms and potential risk factors. Stool samples from all participants and environmental samples from kitchen surfaces, diaper-changing areas, and staff hands were collected for microbiological testing. Confirmed cases were defined as those with a positive stool sample for *Salmonella enterica*, while probable cases were defined as individuals with symptoms consistent with salmonellosis. Attack rates and relative risks (RR) with 95% confidence intervals (CI) were calculated.

Results: Data were collected from 110 individuals (82 children and 28 staff), corresponding to a 76.4% response rate. Twenty-two cases were identified, including four confirmed and 18 probable, yielding an overall attack rate of 20.4%. Males were significantly more affected than females (RR=3.9; 95% CI: 1.74–8.75). The median age of affected children was 29 months (IQR:14–33), and children older than 24 months had a lower risk of illness (RR=0.45; 95% CI: 0.22–0.93). The median illness duration was 4.5 days; 50% of cases sought care from a general practitioner and 9.1% required hospitalisation. Environmental samples were negative for *Salmonella* but positive for *Escherichia coli*, indicating faecal contamination. Observations identified inadequate hygiene practices among staff. The nursery was closed for two weeks to interrupt transmission and implement corrective measures.

Conclusions: This outbreak was most likely propagated by faecal–oral transmission linked to poor hygiene practices. The findings underscore the need for strict infection prevention measures and timely public health action in childcare settings.

Role and outputs: The fellow co-led the outbreak investigation alongside a colleague, actively participating in all phases of the investigation, including the development of the protocol and questionnaire. She conducted phone interviews with parents of affected children and nursery staff; maintained regular coordination with key stakeholders and institutions such as the Local Education Office, the Institute of Public Health, the water supply authorities, the State Health Inspectorate and the laboratory. She performed data entry and data analysis, authored the comprehensive outbreak report and drafted a manuscript. In addition, she submitted an abstract as first author to the International Congress 'Public Health- Achievements and Challenges' in Belgrade, Serbia [1], where it was accepted for oral presentation. The manuscript was submitted to a peer-reviewed scientific journal for publication [3].

Supervisor: Kujtim Mersini

Support: Silvia Bino, Fiona Konomi.

Status: Completed.

5. Research

5.1. Factors associated with influenza vaccination among healthcare workers in three hospitals in Albania, September 2023–March 2024

Background: Healthcare workers are at high risk of acquiring and spreading influenza virus infection. Despite the vaccination programme, Healthcare worker uptake of influenza vaccine remains low in Albania. We aimed to assess barriers and facilitators of influenza vaccination to identify strategies for improving uptake.

Methods: Between September 2023 and March 2024, we carried out a cross-sectional survey of healthcare workers in Albania's three largest hospitals (Tirana, Durrës and Fier). Participants completed a structured questionnaire covering vaccination status, demographics, occupational and health-related factors, influenza vaccination knowledge and attitudes. Vaccination was defined as self-reported receipt of the 2023–2024 seasonal influenza vaccine. We used multivariable logistic regression to calculate adjusted Odds Ratios (aOR) with 95% Confidence Intervals (CI) to estimate factors associated with vaccine uptake. The final model was adjusted for age, sex, chronic condition, occupation, hospital site, and care for pregnant women.

Results: A total of 1 377 healthcare workers responded to the survey (36.8%). Median age was 45 years (IQR:34-53), and 79% were females. Overall vaccination coverage was 45.2% and varied by hospital: Tirana 33.4%, Durres 52.5%, and Fier 80.2%. Factors significantly associated with vaccination included being ≥ 35 years (aOR=2.18; 95%CI=1.63-2.92), previous influenza vaccination (aOR=2.92; 95%CI=2.20-3.90), excellent self-rated health (aOR=2.69; 95%CI=1.02-7.5), and working at Fier's Hospital (aOR=3.98; 95%CI=2.62-6.13). Males (aOR=0.72; 95%CI=0.53-0.98), and those performing aerosol-generating procedures (aOR=0.70; 95%CI=0.52-0.93) had lower odds of being vaccinated. Reasons for non-vaccination included fear of side effects (13%), perception of not being at risk (7.7%), inclination towards natural immunity (26%), and recent COVID-19 vaccination (5.1%).

Conclusion: Although influenza vaccination was free and available at the workplace in Albania, coverage remained low. We recommend further qualitative research to understand the significant differences between hospitals. Tailored strategies should address hospital-specific barriers such as side effect concerns, low risk perception, and vaccine fatigue, focusing on younger healthcare workers, males, and those in high-risk clinical settings.

Role and outputs: The fellow prepared the project proposal form, and performed data cleaning and data analysis of the collected study data. She submitted an abstract as first author to ESCAIDE 2025, Warsaw, Poland [2], where it was accepted as a poster presentation. In addition, she drafted a manuscript as first author to submit to an international peer-reviewed journal.

Supervisor(s): Kujtim Mersini, Silvia Bino

Status: Completed.

5.2. Knowledge, attitudes and practices related to COVID-19 vaccination among people aged 60 years and above in Albania, 2024

Introduction: Like many countries, Albania was significantly affected by the COVID-19 pandemic. Older adults (60+ years) were at increased risk of severe illness and complications, making vaccination crucial for their protection. Understanding the factors influencing vaccine acceptance in this age group is essential to improve coverage. This study aimed to explore knowledge, beliefs, and behaviour related to COVID-19 vaccination among older adults in Albania, providing evidence to support public health strategies and policies.

Methods: A protocol was developed to support a cross-sectional household survey among adults aged 60+ years across Albania. Proportional stratified spatial sampling procedures were specified to select households across all prefectures according to population size (667 464), using GPS-generated random points. A target sample size of 549 participants was calculated using the OpenEpi Toolkit, considering a 70% response rate. Eligibility criteria were defined as age ≥ 60 years, residence in the study area for at least 12 months, and provision of informed consent. Training materials and guidance were prepared for interviewers to ensure standardised data collection. A structured questionnaire was designed and programmed in REDCap for face-to-face administration on tablets, covering COVID-19 knowledge, attitudes, practices, and socio-demographic characteristics. An analysis plan was developed to conduct descriptive analyses and univariable and multivariable logistic regression to assess factors associated with vaccine uptake using R software.

Expected health benefits of the study: The findings will guide targeted public health interventions to improve vaccine uptake in older adults. Participants may benefit directly by receiving accurate information about COVID-19 and vaccination, supporting informed decision-making. At the community level, the study will help identify knowledge gaps, misconceptions, and behavioural barriers. Results will assist policymakers and health services in designing culturally appropriate, evidence-based strategies to enhance vaccine acceptance, reduce hesitancy, and ultimately contribute to better COVID-19 control among a high-risk population.

Role and outputs: The fellow prepared the project proposal form, and developed the project protocol and the questionnaire required for data collection.

Supervisor(s): Kujtim Mersini

Status: Completed.

6. Scientific communication

Conference presentations

1. Ramaj A, Mersini K, Konomi F, Gjergji E, Ymeraj J, Bino S. Investigation of a *Salmonella enterica* outbreak in a nursery in Tirana, Albania: Epidemiology, implications, and control measures. In: Verica J, Milena V, Jelena GR, Biljana K, Olivera N, Nevena M, Ivana G, editors. Book of Abstracts – International Congress of Public Health – achievements and challenges; Institute of Public Health of Serbia 'Dr Milan Jovanović Batut'; 2024. p. 79-79. doi: 10.5937/BatutPHCO24034R (oral presentation).
2. Ramaj A, Mersini K, Daja R, Vasili A, Moçi A, Nika M, et al. Factors associated with influenza vaccination among healthcare workers in three hospitals in Albania, September 2023—March 2024. European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE). 2025 Nov 19-21; Warsaw, Poland (poster presentation).

Publications and outputs

1. Ramaj A, Konomi F, Gjergji E, Ymeraj J, Mersini K. An outbreak of *Salmonella enterica* in a nursery school in Tirana, Albania: A retrospective cohort study, October 2023 [submitted to scientific journals].

7. Teaching activities

On 15 November, 2024, the fellow conducted a two-hour face-to-face lecture with students of the Bachelor's and Integrated Master's Programme and staff members at the University of Shkodra 'Luigj Gurakuqi', Faculty of Natural Sciences Department of Nursing on One Health approaches. The activity was organised with the help of the Dean of The Faculty of Natural Science, the director and the administration of the Department of Nursing.

The activity was attended by 50 participants (44 students and six staff members).

The aim of the lecture was to educate and inform participants about the concept of One Health and its components and to emphasise the importance of this approach.

The two-hour lecture began with a Power Point presentation that covered the definition and main components of the One Health approach, followed by a discussion on its historical progress, significance, benefits, and key issues such as zoonosis, antimicrobial resistance (AMR), and food safety. The incorporation of Slido app quizzes and polls added an engaging element to the session, allowing for real-time interaction and feedback from the students. The lecture concluded with a reflection on the challenges and goals to be achieved in implementing the One Health approach. Overall, the teaching activity provided a full understanding of the concept and its implications in the field of healthcare.

To evaluate whether the learning objectives were met by the participants, the fellow used a pre- and post-questionnaire. The same questionnaire was used for both pre –and post-phases. In addition, Slido app quizzes and polls, and discussions during the activity served as tools for direct feedback.

Status: Completed.

8. Other activities

- Participated in the World Health Organization (WHO) R&D Blueprint consultation on 'Improving Vaccine Effectiveness Studies: A vital step before the next pandemic' (online).
- Participated in SECID (South East European Centre for Surveillance and Control of Infectious Diseases) multisectoral One Health Tabletop Exercise Simulation (role play 'Ending pandemics') (online).
- Participated in the After-Action Review (SEDIC Tabletop Exercise) (online).
- Participated in the training 'Introduction to SARS-CoV-2 wastewater analysis 06' (online).
- Participated in a technical meeting on RespiCast (online).
- Participated in TEPHINET: CDC FETP technical webinar 'Every outbreak is a story! Using qualitative and descriptive data clues to complete the story' (online).
- Participated in webinar 'Scientific Publications and Article Processing Charges' (online).
- Participated in two-part FETP NCD Professional Development webinar series: Critiquing a Published Article Series (Manuscript peer review process + Becoming a peer reviewer for scientific writing and communication) (online).
- Participated in Albanian school of public administration (ASAP) training 'Cyber hygiene and security best practices' (online).
- Completed the United Nations BSAFE on-line e-learning course.
- Participated in the First International Congress of Health Sciences in Albania (in person).

European Centre for Disease Prevention and Control (ECDC)

Gustav den III:s Boulevard 40, 169 73 Solna, Sweden

Phone: +46 (0)8 58 60 10 00 - Fax: +46 (0)8 58 60 10 01

www.ecdc.europa.eu

- Participated in Petal seminar 'Assessing abstracts' with the ECDC CROWD, 28 November 2024 (online).
- Participated in Petal seminar 'Infodemic management' 23 January 2025 (online).

9. MediPIET modules attended

1. Introduction to R course with Applied Epi, 19-22 September 2023 (online).
2. Introductory course, 25 September- 13 October 2023, Spetses, Greece (in person).
3. Study protocol and scientific writing, 26–27 October and 7–8 November 2023 (online).
4. ESCAIDE scientific conference, 22–24 November 2023, Barcelona, Spain (in person).
5. Public Health Microbiology I: Basic phylogeny and AMR 2024 (online).
6. Multivariable analysis, 19–23 February 2024, Berlin, Germany, (in person).
7. Writing abstracts for scientific conferences, 14 March 2024 (online).
8. Qualitative research, 19 and 22 March 2024 (online).
9. Vaccinology inject day, 2 April 2024 (online).
10. Rapid assessment and survey methods + Mass gatherings, 15–19 April 2024, Dublin, Ireland (in person).
11. One Health and VBD module, 3–7 June 2024, Belgrade, Serbia (in person).
12. Project review 2024, 26–30 August 2024, Lisbon, Portugal (in person).
13. Ethics, 6 November 2024 (online).
14. ESCAIDE scientific conference, 20–22 November 2024, Stockholm, Sweden (in person).
15. Time series analysis, 9–13 December 2024, Bilthoven, Netherlands (in person).
16. CBRN, 7–11 April 2025, Budva, Montenegro (in person).

10. Personal conclusions of fellow

Being part of the MediPIET fellowship as a Cohort 6 fellow has been one of the most rewarding and valuable experiences, both professionally and personally. The programme provided me with a better and practical understanding of field epidemiology, strengthening my skills in outbreak investigation, data analysis, and public health communication. In addition to gaining technical competencies, I also benefited from collaborating with incredible colleagues from different countries and backgrounds, which enhanced my ability to work in multidisciplinary and multicultural settings. The fellowship has significantly contributed to my growth as a public health professional. The challenges I faced during the fellowship pushed me to grow, and the friendships I made will stay with me for a lifetime. Overall, this journey has been a transformative one, and I am deeply grateful for the opportunity to be part of the MediPIET network.

11. Acknowledgements

I would like to express my heartfelt gratitude to my frontline coordinators — Nana Mebonia, Netta Beer, and Amy Mikhail, for their continuous support, encouragement, and professional guidance throughout this journey. A special thanks to my on-site supervisor, Kujtim Mersini, for his valuable mentorship and assistance during the fellowship. I am also deeply grateful to Silvia Bino and Fiona Konomi for introducing me to this opportunity and believing in my potential. To everyone who played a role in this fellowship journey, your contribution has meant a great deal. Finally, I thank my family for their unwavering support and understanding over the past two years.