MediPIET Summary report of work activities

Fiona Konomi

Albania, Cohort 4 (2021)

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. More information about the programme is available at: https://www.ecdc.europa.eu/en/training-and-tools/training-programmes/fellowships/medipiet.

2. Pre-fellowship short biography

Fiona Konomi is a pharmacist and nutritionist. She has been employed as a public health specialist at the Department of Environmental Health and Epidemiology at the Local Public Health Directorate in Tirana since October 2020. Throughout this period, she has actively participated in various workgroups responding to the COVID-19 pandemic, but also to all other outbreaks. Additionally, she has been heavily involved in the COVID-19 vaccination campaign, the influenza vaccination initiative, and various other public health projects.

Fellowship

In September 2021, Fiona started her MediPIET fellowship at the Epidemiology Department of the National Institute of Public Health of Albania in Tirana. This report summarises her work performed during the fellowship.

National supervisor: Silvia Bino

Scientific coordinator: Kostas Danis

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

Fellowship projects

3. Surveillance

Evaluation of Influenza-Like Illness Surveillance system in Tirana, October 2022 to May 2023

Background: To respond to seasonal influenza threats, an influenza-like-illness (ILI) surveillance system was established in Tirana, Albania, in 2009, including six public health centres (PHC). Following the COVID-19 pandemic, we evaluated the ILI surveillance system in terms of sensitivity, data quality, timeliness, representativeness, simplicity, and acceptability.

Methods: We followed the CDC guidelines, reviewed documents, analysed surveillance data and conducted stakeholder interviews. Local epidemiologists, and laboratory staff of the six sentinel PHC sites completed a structured questionnaire on information for each attribute. We measured the sensitivity of the influenza and COVID-19 case-definitions, using as denominator the number of all laboratory-confirmed ILI cases.

Results: Of all 313 reports from October 2022 to May 2023, 78% (243) did not have missing or inconsistent values for all variables. Among the 104 (33%) specimens from ILI cases, 18 were influenza-positive and seven were COVID-19 positive. Of the specimens tested with RT-PCR, 7.3% and 20% were positive for COVID-19 and influenza, respectively; the ILI case definition sensitivity was 29% for influenza and 30% for COVID-19. Of all specimens, 64% were collected within two days since symptom onset and were received within 24 to 72 hours from collection; 89% were tested for both influenza and SARS-CoV-2. Geographical coverage was 40%, but various age groups were under-represented with no specimen having been taken from under-five-year-olds, especially in one PHC. Among the interviewed staff, 72% found surveillance activities somewhat easy, and 72% were happy with reporting and follow-up. Staff dedicated 25% of their time weekly to surveillance activities.

Conclusions: The ILI surveillance system had moderate data quality and good simplicity, acceptability and specificity. However, improvements are needed, especially in terms of representativeness and sensitivity. We recommend replacing a poorly performing sentinel centre with a more effective one, increasing the collection of specimens in underrepresented age groups, strengthening training, and addressing organisational challenges to improve sensitivity.

Role and outputs: Principal investigator

The fellow wrote the protocol, created the questionnaire, conducted data entry, interviewed stakeholders, analysed the data, wrote the final report, shared the findings with stakeholders, presented the results to the annually epidemiology meeting for the ILI surveillance at the National Institute of Public Health and submitted a manuscript to a peer-reviewed journal.

Supervisor: Silvia Bino

Status: Completed

4. Outbreaks

E. Coli outbreak at a school in Tirana linked with cheese pie, November 2022

Background: On 29 November 2022, a school nurse in Tirana reported that 26 students had presented with acute gastrointestinal (GI) illness. Consuming food in a fast food restaurant nearby the school was suspected as the source of the outbreak. We aimed to identify the vehicle of transmission.

Methods: We conducted a cohort study among all students in the four classes and interviewed students using a structured questionnaire on symptoms and food exposures. A case was defined as a school student, who consumed any food item at the fast food restaurant during the previous two days and developed GI symptoms. We inspected the sanitary conditions at the restaurant. Faecal samples were collected from students and food specimens from the fast food restaurant for microbiological analysis. We calculated risk ratios (RR) and 95% confidence intervals (95%CI) using binomial regression.

Results: Of 75 students, 31 (41%) developed symptoms from 28 to 30 November 2022 and met the case definition. Of all cases, 19 (61%) had consumed cheese pie. The attack rate among those who consumed cheese pie (79%; 19/24) was three times higher (RR 3.4;95%CI 2.0–5.8) than among those who did not. Cultures of stool samples from eight cases resulted negative for microorganisms. However, in three specimens taken from the shop, cheese pie and the cheese included in the cheese pie were positive for E. Coli. Specimens taken from the hands of the staff, working table and pie holder were also E. Coli positive. The Critical Control Points (HACCP), including refrigerator temperature monitoring, thermal processing, documentation of monitoring, verification procedures, and the right-hand cleaning procedure of at least 10–15 seconds were not respected.

Conclusions: Epidemiological, laboratory and environmental investigations pointed towards the cheese pie as the potential source of this E.coli outbreak. Since the restaurant did not meet the minimum hygienic requirements, we recommended that the food safety authorities enforce guidelines for safe preparation and sale of the products and continue with the tracing of the cheese product.

Role and outputs: Principal investigator

The fellow was involved in all the steps of the outbreak investigation. She wrote the protocol, developed the questionnaire, performed data entry and analysis, and wrote the final report.

Supervisor: Silvia Bino

Status: Completed

5. Research

COVID-19 breakthrough infections during the circulation of Delta and Omicron variants in Tirana, Albania, April 2021to March 2022

Background: COVID-19 breakthrough cases raised crucial questions about vaccine effectiveness, implications for public health, and the dynamics of viral transmission. We described vaccine breakthrough infections in Tirana during the Delta (1 April 2021-15 December 2021) and Omicron (16 December 2021-31 March 2022) periods, to better inform mitigation and vaccination strategies.

Methods: We extracted data from 01 April 2021-31 March 2022 (study period) from two systems: the Albanian infectious disease surveillance system, and the national vaccination database. We defined a COVID-19 case as a resident of Tirana who tested (RT-PCR/antigen) positive for SARS-CoV-2 on a respiratory specimen. We defined vaccine breakthrough infection as having a COVID-19 positive specimen collected ≥14 days after the primary series of vaccines (2 doses). We calculated risk of breakthrough infection using the total number of fully vaccinated individuals as denominator and risk ratios (RR) using binomial regression.

Results: During the study period, 23,875 cases were reported in Tirana; 36% (291,445/800,000) individuals were fully vaccinated and of those, 9,156 (3.1%) breakthrough infections were detected. The median time from vaccination to breakthrough infection was 149 (IQR:102-209) days. The risk of breakthrough infection was higher in 0–39-year-olds (RR=3.01;95%CI=2.78-3.27) and during the Omicron period (RR=32; 95%CI=30.00-34.91). Those receiving Gam-COVID ((RR=1.64;95%CI=1.39-2.02), ChAdOx1-S/Vaxzervria (RR=1.56;95%CI=1.48-1.65), BNT162b2-Comirnaty (RR=1.36;95%CI=1.31-1.41) had a higher risk of breakthrough infection compared with those vaccinated with CoronaVac.

Conclusions: Incidence of COVID-19 breakthrough infection was significantly higher during the Omicron period and among younger individuals in Tirana and varied across different vaccine types highlight the varying levels of effectiveness conferred by each vaccine. Longer time since vaccination and waning immunity likely contributed to the high number of breakthrough infections during the Omicron period. We recommend close monitoring and rapid adaptation of vaccination strategies, including promoting booster vaccination to reduce breakthrough infections in the future.

Role and outputs: Principal investigator

The fellow wrote the project proposal, developed the data extraction form, analysed the research data, wrote a final report and submitted a manuscript to an international peer-reviewed journal.

Supervisor: Silvia Bino

Status: Completed

6. Scientific communication

Conference presentations

Konomi F. Evaluation of Influenza-Like Illness Surveillance system in Tirana, October 2022 to May 2023. MediPIET Scientific Event, 23 November 2023, Barcelona, Spain.

Publications and outputs

Konomi Fiona, Silvia Bino, Kostas Danis. COVID-19 breakthrough infections during the circulation of Delta and Omicron variants in Tirana, Albania, April 2021 to March 2022 [submitted].

7. Teaching activities

Micro-planning and organisation of COVID-19 vaccination: Roles and responsibilities of stakeholders

The training aimed to train the directors, vaccinators and operators of the 29 local Health Centres in Tirana, which would serve as vaccination focal points, on the microplanning and organisation of the local COVID-19 vaccination campaigns. The course was delivered in two days. The fellow organised and delivered two, interactive lectures and moderated the discussions. Participants reported that they felt well prepared following the training.

HPV vaccination

This course was focused on integrating HPV into the national vaccination schedule and aimed to provide healthcare workers with the expertise and capabilities required for the successful execution and promotion of the HPV vaccination program. The one-day course targeted the representatives of all the health care centres (29 medical doctors, 15 paediatricians, and 32 vaccinators). The fellow organised the course, delivered the lecture and moderated the discussions. Participants were satisfied with the delivery and the health promotion material.

8. Other activities

- Engaged in COVID-19 surveillance and contact tracing activities, conducting fieldwork across various outbreaks.
- Engaged in COVID-19 vaccination campaigns.
- Prepared the daily, weekly, monthly reports for COVID-19 activities (surveillance and vaccination).
- Participated in local and central-level meetings regarding the emergency and preparedness plan for communicable diseases.
- Participated in the preparedness plan for the hospitality of the Afghan refugees.
- Contributed to the organisation of the primary Hospitality Center for the Afghan refugees, providing them with the health care service needed.
- Participated in the assessment of the COVID-19 vaccination process in the Institute of Public
- Replied to queries of individuals regarding immunisation, and collaborated with family doctors, paediatricians, and vaccination professionals.
- Participated as interviewer in the survey on behaviours, and practices of pregnant women, parents, and healthcare staff concerning COVID-19 immunisation.
- Engaged in communication, promotion and training healthcare staff for the adoption of HPV as a new vaccine in the Albanian national immunisation calendar.
- Participated as moderator and presenter in the National Vaccination meeting.
- Participated in a scientific writing workshop organised by the US CDC in Zagreb, Croatia (24–28 April 2023).
- Participated in a workshop on One Health and zoonotic outbreaks management, organised by WHO and IPH, Tirana, Albania (September 2023).

9. MediPIET modules attended

- Introductory Course – Part 1, 20 September – 8 October 2021, online.
- Inject day: Phylogeny, 20 October 2021, online.
- Inject days: Operational Research, 26–27 October 2021, online.
- Inject days: Data Collection, 10–11 November 2021, online.
- Outbreak Investigation module, 6–10 December 2021, online.
- Multivariable Analysis module, 14–18 March 2021, online.
- Multivariable Analysis inject day, 30 March 2022, online.
- Project Review module I & Introductory Course – Part 2, 20–29 April 2022, Spetses, Greece, face-to-face.
- Project Review Module II, 29 August – 2 September 2022, Lisbon, Portugal, face-to-face.
- Time Series Analysis module, 7–11 November 2022, Bilthoven (Utrecht), Netherlands, face-to-face.
- Chemical, Biological, Radiological and Nuclear Awareness and Mitigation (CBRN) Module, 13–17 February 2023, Petrovac, Montenegro, face-to-face.
- Vaccinology Inject day, March 29, 2023, online.
- One Health & Vectorborne Diseases module, 2–4 and 15–17 May 2023, online.
- Rapid Assessment and Survey Methods (RAS) & Mass Gatherings, 19–23 June 2023 Stockholm, Sweden, face-to-face.
- Project Review module 2023, 28 August – 1 September 2023, Lisbon, Portugal, face-to-face.

10. Personal conclusions of fellow

Engaging in Medipiet training has been a transformative experience for me, providing valuable insights and skills crucial for addressing public health challenges. The interactive nature of the program gave me experience for the practical application of epidemiological principles in real-world scenarios. From outbreak investigations, data analysis to scientific writing, the training equipped me with the tools needed to contribute meaningfully to public health surveillance and intervention.

The exposure to diverse case studies and collaborative projects enhanced my ability to think critically and strategically. Interacting with experienced professionals and mentors in the field contributed to both my personal and professional development. The training not only deepened my understanding of epidemiological methodologies but also highlighted the importance of effective communication and interdisciplinary collaboration in public health.

A key aspect of this training was the collaboration among colleagues, a pivotal element in the field of epidemiology. The exchange of experiences and collaboration with peers from various countries has enhanced my collaborative skills and broadened my understanding of adapting to diverse case scenarios. Establishing connections with colleagues across Europe was also a crucial aspect of staying connected and prepared for common epidemiological threats such as pandemics.

In conclusion, the MediPIET training has been an important chapter in my professional journey, shaping me into a more proficient and adaptable public health practitioner. The lessons learned and skills acquired during this training will undoubtedly contribute to my ability to address and mitigate public health threats in the future in Albania and wherever needed.

11. Acknowledgements

I would like to express my heartfelt acknowledgments to the following individuals for their invaluable contributions and unwavering support throughout my journey:

Kostas Danis, my dedicated frontline coordinator, whose guidance, expertise, dedicated time and encouragement have been instrumental in shaping my professional development as field epidemiologist.

Silvia Bino, my supervisor, whose support, and guidance have greatly enriched my understanding of practical aspects within the field of epidemiology.

Bora Salaj, my director, for providing encouragement and support to work during the Fellowship.

I extend my sincere gratitude to the entire staff of the Local Public Health Directory, especially the Epidemiology Department, for their substantial help and collaborative spirit that have been crucial to my progress.