



EU Initiative on  
Health Security



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MediPIET

Mediterranean and Black Sea Programme  
for Intervention Epidemiology Training

# MediPIET Summary report of work activities

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Georgia, 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 2-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

Lika Karichashvili is holder of a Bachelor's degree in Public Health. She is a Specialist at HIV/AIDS, Hepatitis, STI and TB Division at the National Centre for Disease Control and Public Health (NCDC) in Georgia. In 2020–2021, Lika was an educational consultant for the NGO 'Hand in Hand'. Early in her career, she was a volunteer for a hospice, 'Pericvaleba'.

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## Fellowship

On 15 September 2021, Lika Karichashvili started her MediPIET fellowship at the National Centre for Disease Control and Public Health (NCDC), Georgia. This report summarises the work performed during the fellowship.

**National supervisors:** Nana Mebonia (2021–2022), Ekaterine Ruadze (2022–2024)

**Scientific coordinators:** Liese van Gompel (2021–2022), Pawel Stefanoff (2022–2024)

## Fellowship projects

### 3. Surveillance

#### *Evaluation of the acute hepatitis B surveillance system in the country of Georgia, 2015–2020*

**Background:** In 2012, the country of Georgia established an electronic integrated disease surveillance system (EIDSS) for acute hepatitis B virus (HBV) infection. All medical facilities must report laboratory-confirmed acute HBV cases to the regional public health centres (PHCs) within 24 hours, which are subsequently registered in EIDSS. We evaluated the HBV surveillance system's performance.

**Methods:** For the evaluation of acute HBV cases notified in 2015–2020, we used the Centers for Disease Control and Prevention updated guidelines. We assessed data completeness by calculating the percentage of missing values for key variables. We assessed simplicity, acceptability and flexibility by describing surveillance processes and by surveying PHC epidemiologists. We evaluated representativeness by comparing cases registered in EIDSS with cases registered in hospital discharges. We assessed timeliness by calculating the number of days from the date of diagnosis to the date of notification in EIDSS. We calculated the positive predictive value (PPV) as the proportion of cases notified between 2018 and 2020 having documentation of confirmatory tests in their medical records, meeting the confirmed case definition.

**Results:** Between 2015 and 2020, 270 cases of acute viral hepatitis B were reported to EIDSS. All notified cases were HBsAg positive. However, only 53% of the 19 key variables were complete. Hepatitis B test results were missing in most reported cases, despite 82% being classified as 'confirmed'. Simplicity and acceptability of the system were affected by 30% respondents experiencing challenges with the EIDSS reporting form. The system had limited flexibility due to cumbersome procedures to implement any changes. Representativeness was limited, as only 41% of confirmed cases recorded in the hospital discharge database were reported to EIDSS. The average notification delay was 72 hours. Among 106 cases notified between 2018 and 2020, 67 met the case definition, leading to a PPV of 63%.

**Conclusion:** The surveillance system for acute HBV infection was timely but not representative and did not correctly ascertain cases. We recommend reconsidering the statutory notification time of 24 hours, revising notification forms and providing clear guidelines for data entry, and reporting of all test results needed for adequate case classification to enhance data completeness and reliability of case classification.

**Role and outputs:** Principal investigator. Lika drafted the evaluation protocol, planned and carried out the field investigations, analysed data, prepared the report, and drafted a peer-reviewed manuscript.

**Supervisors:** Nana Mebonia, Ketevan Galdavadze, Pawel Stefanoff

### 4. Outbreaks

#### *Outbreak of diarrhoeal disease in the Gordi village, Republic of Georgia*

**Background:** On 27 July 2022, a total of 10 students participating in a summer camp in Gordi village were admitted to a local hospital with gastroenteritis symptoms. The camp was established on 25 July in a forest setting, where participants resided in tents. During their stay, the participants relied on water from a nearby forest spring for drinking and hand hygiene purposes. The camp was equipped with a toilet located 200 meters away from the tents. The food consumed by the camp participants was obtained through various sources. Some of the food was pre-supplied and consisted of canned items. Additionally, food was prepared on-site under field conditions. Participants also had the option to purchase food from a nearby café or the local market. To investigate the suspected outbreak, a team was formed led by two epidemiologists from the National Centre for Disease Control and Public Health (NCDC).

**Methods:** We defined a suspect case as an individual who stayed at the Gordi camp between 25 and 28 July 2022, consumed food and water at the camp, and experienced symptoms of nausea or weakness, along with at least one of the following: temperature above 37°C, abdominal pain, vomiting, diarrhoea, or chills. To identify cases, we obtained the telephone numbers of all 49 camp participants. The camp management provided a list of meals and food items consumed during the camp. Starting on 28 July 2022, we conducted interviews with

participants using a structured questionnaire that collected demographic information, symptoms, and a detailed list of food items and drinking water. We conducted a retrospective cohort study to identify the most likely source of infection. We calculated food-specific attack rates (AR), relative risks (RR), and 95% confidence intervals to assess the association between food consumption and illness. We carried out stratified analysis to examine potential interactions among different food items. We used logistic regression for multivariate analysis. For laboratory analysis, we collected rectal smear or faeces specimens from the identified cases. A total of 9 rectal smears and two faeces' specimens were sent to the Central Office of NCDC Lugar Centre for Bacteriological Research. Environmental studies were conducted by the National Food Agency, which collected four samples of food (canned meat, canned fish, canned vegetables) from the food supply for laboratory analysis. Additionally, two samples of drinking water were taken from two different points of the water source for chemical and microbiological testing.

**Results:** Out of the 49 participants, 17 cases were identified, resulting in an attack rate of 35%. The majority of cases were females (76%) and students with a mean age of 20 years. Symptoms included weakness, nausea, elevated temperature, abdominal pain, vomiting, diarrhoea, and chills. The onset of illness peaked on the evening of 27 July and the early morning of 28 July, with no cases reported after the third day of exposure. Analytical findings revealed that females and individuals aged 21-22 years had a higher risk of infection. Specific food items such as jam, 'Cico bebo' cheese, canned beans, pasta with canned meat sauce, baked canned beans, brandy, and peanuts were associated with an increased risk of illness. Stratified analysis indicated potential interactions, cross-contamination and intertangled consumption patterns among these food items. Laboratory findings showed positive rectal samples for *Staphylococcus aureus*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*. In the environmental study, the spring water in Gordi village was found to contain mesophilic aerobes, coliform bacteria, *E. coli*, *S. faecalis*, Salmonella, and Shigella.

**Conclusion:** Consumption of contaminated food items, particularly jam, and the use of untreated spring water were identified as key factors contributing to the gastroenteritis outbreak at the Gordi village summer camp. Based on these findings, we recommended to strengthen hygiene practices and provide clean drinking water sources or filters on the taps in future organised summer camps. Specifically, we recommend boiling the water before drinking and/or filtering, enforcing safe food handling and preparation practices, and educating and training on food and water hygiene. In addition, we recommended implementing measures to improve food storage, handling, and preparation procedures in future summer camps.

**Role and outputs:** Member of the outbreak investigation team. Lika participated in all phases of the outbreak investigation, developed the case definition, drafted the questionnaire, developed data entry frame, collected and analysed the data and drafted the outbreak report.

**Supervisor:** Pawel Stefanoff

## 5. Research

### *Characteristics of HIV late detected cases in Georgia population, 2018–2022*

**Background:** Since 2002, Georgia has conducted annual Integrated Behavioural Surveillance Surveys (BBS) to assess HIV prevalence among key populations, including people who inject drugs (PWID), men who have sex with men (MSM), and female sex workers (FSW). In 2009, Georgia enhanced HIV surveillance targeting both the general population and high-risk groups. Georgia remained a low prevalence country. In 2021, the estimated HIV prevalence in the general population was 0.19%. The aim of the investigation was to assess determinants of HIV late detection in the general population in Georgia between 2018 and 2022.

**Methods:** To assess the determinants of late HIV detection in the general population from 2018 to 2022, we obtained data from the Infectious Diseases, AIDS and Clinical Immunology Research Centre (AIDS Centre). Data from the Infectious Diseases, AIDS and Clinical Immunology Research Centre included new cases, ART treatment, CD4 counts, viral suppression status, development of AIDS, and AIDS-related deaths. We defined late detection as a person with HIV infection who had his/her first CD4 count <350 cell/mm<sup>3</sup> within 180 days of HIV detection or AIDS detection within 180 days. Additionally, we defined advanced disease as a person with HIV infection who had his/her first CD4 count <200 cell/mm<sup>3</sup> within 180 days of HIV detection or AIDS detection within 180 days. We calculated the percent of annual HIV detected in 2018–2022 by dividing the newly detected HIV infections to overall HIV registered infections for the given year, based on data from the AIDS Centre. We calculate the knowledge of HIV status by dividing the number of registered HIV infections at AIDS centre to the estimated number of people living with HIV for the given year. We calculated the proportion of people on ART treatment by dividing the number of registered HIV infections at AIDS centre to HIV infections on ART treatment for the given year. We calculated viral suppression by dividing HIV infections on ART treatment to HIV infections who reached viral suppression for the given year. We compared the ART treatment cascade based on the three above-described indicators by year. We estimated summary measures of late HIV detection by calculating the mean, standard deviation, and median CD4 counts by year, mode of transmission, and age group. We estimated survival probabilities using Kaplan-Meier analysis. Finally, we used logistic regression to explore characteristics

associated with late detection and mortality. We used the statistical software STATA 17 for data management and analysis.

**Results:** Between 2018 and 2022, the AIDS Centre recorded a total of 2 955 HIV cases, with the highest proportion recorded in 2019 (22%, 660/2 955) and the lowest in 2020 (17%, 525/2 955). The percentage of people living with HIV who know their status increased from 59% in 2018 to 83% in 2022, while the percentage of those living with HIV and know their status, the proportion on ART treatment remained stable between 84% and 86%. Viral suppression among those treated improved from 89% in 2020 to 92% in 2022. Late detection was highest in 2019 at 34% and dropped to 8% in 2022; younger individuals under 24 years generally showed lower CD4 counts at diagnosis compared to older individuals, indicating delays in testing. HIV cases among heterosexuals generally had lower CD4 counts than among MSM. In 2018–2022, of 2 955 people detected with HIV, 239 (8%) died. Their mean CD4 count at the time of diagnosis was 134 cell/mm<sup>3</sup> (95% CI: 104–164). Among those who survived, the CD4 count at diagnosis was 361 cell/mm<sup>3</sup> (95% CI 351–371), and this difference was statistically significant ( $P < 0.001$ ). In terms of survival, Kaplan-Meier analysis showed lower survival rates for those with late detection or advanced disease, with a significant decline in survival early in the observation period. Univariate analysis highlighted that, individuals over 24 years had higher odds of late detection (Odds Ratio: 1.74, 95% CI: 1.30–2.18,  $p < 0.001$ ), compared to individuals in the younger age group. Compared to those with heterosexual transmission MSM had significantly lower odds of late diagnosis (Odds Ratio: 0.59, 95% CI: 0.49–0.72,  $p < 0.001$ ). Injecting drug users were more likely to be diagnosed late, but this association was not statistically significant (Odds Ratio: 1.16, 95% CI: 0.94–1.44,  $p = 0.155$ ). Furthermore, individuals over 24 had significantly higher odds of death (Odds Ratio: 2.1, 95% CI: 1.14–3.13,  $p < 0.001$ ) compared to individuals younger than 24 years. Injecting drug users had higher odds of death (Odds Ratio: 1.62, 95% CI: 1.16–2.24,  $p = 0.004$ ), compared to those with heterosexual transmission, while transmission via sex between men showed significantly lower odds (Odds Ratio: 0.19, 95% CI: 0.10–0.37,  $p < 0.001$ ) of death. Multivariable analysis confirmed these findings, indicating targeted interventions could be crucial for improving outcomes.

**Conclusion:** The management of HIV patients has improved during the investigated period. While the awareness of HIV status has improved, the access to ART treatment and its effectiveness remained stable. The proportion of HIV infection with their infection detected late has decreased over time, showing progress in early diagnosis, especially among MSM, who also survived longer. However, older adults and injecting drug users still faced higher chance of late detection and death, pointing to the need for targeted health interventions. Overall, while advances in HIV management are evident, continued efforts are necessary to address the specific needs of higher-risk groups to further improve these health outcomes. Based on this investigation, we recommend implementing targeted outreach and testing campaigns to increase awareness and accessibility of HIV testing services, particularly among heterosexual persons over 24 years old, development and implementation of interventions to support antiretroviral therapy, including patient education, counselling, and support programs to address individual barriers to treatment.

**Role and outputs:** Principal investigator. Lika drafted the study protocol, collected and cleaned the data, carried out statistical analysis and developed the report.

**Supervisor:** Ekaterine Ruadze

## 6. Scientific communication

### *Conference presentations*

- Karichashvili L, Galdavadze K, Zakhashvili K, Tsereteli M, Ruadze E, Surguladze S, Stefanoff P. Evaluation of acute hepatitis B surveillance system in Georgia, MediPIET Scientific Session, Annual meeting of National ECDC Correspondents in European Neighbourhood partner countries and MediPIET National Focal Points, Stockholm, 22 November 2022.
- Evaluation of acute hepatitis B surveillance system in the country of Georgia, 2015–2020, International Viral Hepatitis Elimination Meeting (IVHEM) 2023, Amsterdam, 1–2 December 2023.

### *Publications and outputs*

Karichashvili L, Galdavadze K, Zakhashvili K, Tsereteli M, Ruadze E, Surguladze S, Stefanoff P. Evaluation of the acute hepatitis B surveillance system in the country of Georgia, 2015–2020. Submitted to BMC Public Health on 6 February 2025.

## 7. Teaching activities

### *Rapid response team training*

The training was organised in collaboration between NCDC and its regional branches for epidemiologists affiliated with public health centres in the respective regions, who were actively involved in addressing the challenges posed by the COVID-19 pandemic and other public health emergencies. Each five-day session was held face-to-face in nine regions of Georgia, namely Guria, Poti, Kakheti, Shida Kartli, Samckhe-Javakheti, Mtskheta-Mtianeti, Kvemo-Kartli, Imereti, and Adjara. The overall training aimed to strengthen effective emergency preparedness and response, and covered various topics, such as COVID-19 incident management systems, recruitment and management of rapid response teams, epidemiology, data management, contact tracing, one health principles, infection prevention and control, sample taking for COVID-19, environmental safety and waste management, risk communication, and vaccination against COVID-19. Lika was responsible to organise a session on contact tracing, sample taking for COVID-19, environmental safety and waste management and prevention and control of infection. Participation in facilitation of this course was a great experience for Lika, although she did not have a chance to formally evaluate her teaching.

### *Collection of nasopharyngeal specimens and biosafety rules for PCR and antigen diagnostics*

The training on nasopharyngeal specimen collection and biosafety rules for PCR and antigen diagnostics was held in Tbilisi, Georgia, targeting staff from various private healthcare facilities responsible for collecting biological samples. This course aimed to share experience among public health specialists about safe and effective sample handling practices. Conducted face-to-face, the training encompassed both theoretical knowledge and practical skills, emphasising the correct use of personal protective equipment (PPE), the nasopharyngeal sample collection technique, and adherence to biosafety standards. Sessions included hands-on practice with moulage models for sample collection and PPE application, enhancing participant engagement through practical exercises, question-answer sessions, and demonstrative videos. The training successfully equipped participants with the necessary skills to manage and transport biological samples safely, observing strict biosafety protocols. Lika was responsible to organise whole training course including sessions on sample collection and biosafety rules for PCR and antigen diagnostics. Participation in facilitation of this course was a great experience for Lika, although she did not have a chance to formally evaluate her teaching.

## 8. International assignments

None

## 9. Other activities

None

## 10. MediPIET modules attended

1. Introductory Course, Part 1, 20 September to 8 October, virtual
2. Inject day Phylogeny, 20 October, virtual
3. Inject days Operational Research, 26–27 October, virtual
4. Inject days Data Collection, 10–11 November, virtual
5. Outbreak Investigation, 6–10 December, virtual
6. Multivariable Analysis, 14–18 March, virtual
7. Multivariable Analysis inject day, 30 March, virtual
8. Project Review 1 & Introductory Course -Part 2, 20–29 April, Spetses, Greece
9. Rapid Assessment and Survey Methods + Mass Gatherings, 6–10 June, Stockholm, Sweden
10. Project Review Module II, 29 August to 2 September, Lisbon, Portugal
11. Time Series Analysis, 7 – 11 November, Utrecht, Netherlands
12. Qualitative Research Inject days, 31 January and 3 February, Virtual
13. CBRN, 13–17 February, Podgorica, Montenegro
14. Vaccinology Inject day, 29 March, Virtual
15. One Health & Vectorborne Diseases, 2–4 and 15–17 May, Virtual
16. Project Review 2023, 28 August to 1 September, Lisbon, Portugal

## 11. Personal conclusions of fellow

After finishing the MediPIET fellowship, I feel grateful and accomplished. With Ekaterine Ruadze's help, I learned a lot about STATA coding and time management. Pawel, my coordinator, also supported me in my learning journey. Although facing some challenges with online courses and missing out on international opportunities, I enjoyed working with my fellow trainees. Now, I plan to continue working as an epidemiologist at NCDC and completing my Masters in Public Health studies. Overall, the Fellowship has given me important skills and a strong commitment to public health.

## 12. Acknowledgements

1. Pawel Stefanoff
2. Liese Van Gompel
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