Piotr Polański

The European Programme for Intervention Epidemiology Training (EPIET), Cohort 2023

National Institute of Public Health – National Institute of Hygiene National Research Institute, Warsaw, Poland

Background

The ECDC Fellowship Programme is a two-year competency-based training with two paths: the field epidemiology path (EPIET) and the public health microbiology path (EUPHEM). After the two-year training, EPIET and EUPHEM graduates are considered experts in applying epidemiological or microbiological methods to provide evidence to guide public health interventions for communicable disease prevention and control. The Administrative Decisions ECDC/AD/2022/16 Rev.01 and ECDC/AD/2023/06 govern the European Union (EU)-track and Member State (MS)--track, respectively, of the ECDC Fellowship Programme, field epidemiology path (EPIET) and public health microbiology path (EUPHEM), Cohort 2023.

Both curriculum paths provide training and practical experience using the 'learning-by-doing' approach at acknowledged training sites across the European Union/European Economic Area (EU/EEA). This final report describes the experiences and competencies the fellow acquired by working on various projects, activities, theoretical fellowship training modules, other modules or trainings, and international assignments or exchanges during the fellowship.

Pre-fellowship short biography

Piotr Polański is Senior Public Health Specialist at the National Institute of Public Health – National Institute of Hygiene National Research Institute (NIPH–NIH NRI), Department of Epidemiology of Infectious Diseases and Surveillance. His academic background is in animal sciences and veterinary medicine, with a Bachelor of Animal Husbandry Sciences (B.A.Sc.) and a Doctor of Veterinary Medicine (DVM) from the Warsaw University of Life Sciences.

Since joining the NIPH–NIH NRI in 2013, Piotr has worked on a broad range of topics, mainly focusing on food- and waterborne diseases, including food-borne outbreaks, hepatitis A, listeriosis, intestinal salmonellosis and shigellosis, He has also been a specialist for National Focal Point (NFP) for International Health Regulations (IHR). In addition, he has participated in various projects focusing on the digitalisation of the national surveillance system in Poland. Motivated on improving his skillset, especially in the field of teaching other public health professionals, led him to join the EPIET programme. In September 2023, he started his EPIET fellowship as an MS-track fellow.

Results

The objectives of the core competency domains were achieved partly through project and activity work, and partly by participating in the training modules. Results are presented in accordance with the EPIET/EUPHEM core competencies, as set out in the ECDC Fellowship Manual[1].

[1] European Centre for Disease Prevention and Control (ECDC). Manual for the ECDC Fellowship Programme EPIET and EUPHEM

Stockholm, 2025

1. Epidemiological investigations

1.1. Outbreak investigations

1.1.1. Hepatitis A virus (HAV) outbreak in a public school in Mazowieckie Voivodeship, Poland, 2023

Supervisor: Małgorzata Sadkowska-Todys (NIPH–NIH NRI, Warsaw, Poland)

Category: Food- and waterborne diseases

Aim: a) To identify specific risk groups for further post-exposure prophylaxis; b) To contribute towards finding the source of infections; c) To provide recommendations for further epidemiological investigations in HAV outbreaks in similar settings.

Methods: An HAV outbreak was reported in a public school in Mazowieckie Voivodeship in early December 2023 consisting of three cases with symptom onset ranging between 16 and 21 November. A 10-step outbreak investigation approach was used, with case definitions not including symptoms (due to underaged population). To identify potential exposures leading to infection, a retrospective cohort study was conducted focusing on school-related food exposure (one month before symptom onset), and behavioural and travel exposures (one to two months before symptom onset). During additional case finding, 65 persons were tested for anti-HAV antibodies (ELISA method), and 54 persons were interviewed using designated questionnaires. All cases of hepatitis A in affected districts were mapped. No food products were tested.

Results: Relative risks did not indicate that examined exposures increased the risk of infection. Laboratory findings identified no further immunoglobulin M (IgM)-positive cases and four immunoglobulin G (IgG)-positive cases.

Public health implications/Conclusions: No food product or other potential exposure was found to increase the risk of becoming a case. The presence of specific anti-HAV IgG antibodies and the absence of IgM antibodies in majority of the cases may suggest that a possible common exposure took place before 10 October, or that confirmed cases were secondary to person-to-person transmission. In total, 28 adults and 137 children were vaccinated.

Role: The fellow contributed to developing the case definitions (ensuring sensitivity to detect asymptomatic cases in young children), designing additional case-finding strategy (selecting exposed subpopulations, such as, children from affected classes, their teachers, and household contacts), creating post-exposure prophylaxis strategy (identifying subpopulations for post-exposure vaccination), and developing the questionnaires (including validation questions and strategy for interviewers). He also performed descriptive and statistical data analysis.

1.2. Surveillance

1.2.1. Assessing the completeness and precision of the variable, 'affiliation to MSM subpopulation' in the Polish hepatitis A surveillance data between 2009 and 2023

Supervisor: Małgorzata Sadkowska-Todys (NIPH–NIH NRI, Warsaw, Poland)

Type of project: Evaluating a surveillance system; analysing data from a surveillance system

Aim: To assess the completeness and precision of the variable, 'affiliation to MSM subpopulation' in the Polish hepatitis A surveillance data between 2009 and 2023, and to evaluate the timeliness of reporting in the same period.

Methods: A retrospective data analysis was performed to evaluate the timeliness of reporting. This was based on the date of onset, date of hospital admission, date of final diagnosis, date of notification to the public health authority, and date of case registration in the system. Based on time differences of those variables, a set of lag variables was created: registry lag (difference between date of notification to public health and date of registration in the system) and passive surveillance lag (difference between date of onset and date of notification). A retrospective data analysis of the precision and completeness of the variable, 'affiliation to MSM subpopulation' was conducted using registry-based data.

Results: Between 2009 and 2019, yearly medians of passive surveillance and seeking-medical care lags ranged from 14 and 19 days for the first indicator and between three and six days for the latter. Between 2018 and 2019, the six-month medians of system registry lag and passive surveillance lag decreased from 145.5 and 26 to 25 and 12 days, respectively. Between 2014 and 2023, there were 548 epidemiological questionnaire forms, with **two missing** data entries for the 'affiliation to MSM subpopulation' variable.

Public health implications/Conclusions: The decreasing trend in reporting time lags may be related to the decreasing number of HAV cases. An increase of HAV reporting time lags at the beginning of the COVID-19 pandemic suggests that the surveillance system was reallocating resources to the new situation. The review of registry-based data indicates minimal missing data for the 'affiliation to MSM subpopulation' variable.

Role: The fellow wrote the report, extracted the data, and analysed it.

paths. Stockholm: ECDC; 2025. Available at: https://www.ecdc.europa.eu/en/publications-data/ecdc-fellowship-programme-manual

Routine surveillance activities

National surveillance of food- and waterborne outbreaks in Poland

Activities and role: The activities of the fellow included ongoing substantive support for local public health epidemiologists conducting investigations, data analysis, validation and data reporting to the European Food Safety Authority (EFSA). Activities also included monitoring the epidemiological situation, and the occasional preparation of summary reports and aggregates for the Chief Sanitary Inspectorate of Poland.

National surveillance of hepatitis A in Poland

Activities and role: The activities of the fellow included data validation, cross-checking case-based data with outbreak data, monitoring epidemiological investigations, providing substantive support to local and regional epidemiologists, and preparing data for reporting to The European Surveillance System (TESSy) and the European surveillance portal for infectious diseases (EpiPulse).

Involvement in outbreak investigations other than EPIET projects

Activities and role: The fellow was involved in three outbreak investigations:

- HAV outbreaks in Podlaskie Voivodeship (September 2024–March 2025) and Lubuskie Voivodeship (November 2024–January 2025): The activities of the fellow included providing input in additional case finding, developing case definitions, geospatial analysis/plotting, selecting groups for post-exposure prophylaxis.
- Legionellosis outbreak in Podkarpackie Voivodeship (September–October 2023): The activities of the fellow included data analysis and presenting descriptive findings to the European Legionnaires' Disease Surveillance Network (ELDSNet) working group. Data were compiled from the national surveillance system.

Involvement in surveillance of suspected West Nile Virus (WNV) cases in Poland during the 2024 season

Activities and role: The fellow was involved in epidemiological investigations of three suspected WNV cases in Poland between June and September 2024. Activities included data analysis, cross-checking laboratory testing results, facilitating communication between public health authorities, clinicians, and the NIPH–NIH.

- The first case was a child from south-western Poland, with recent history of international travel, who developed symptoms of meningoencephalitis and did not respond to specific and non-specific treatment. Preliminary non-specific serological tests were positive for WNV. One of the procedures which was administered for this patient was plasmapheresis, which significantly lowered the serological test sensitivity. The fellow helped the local public health authority in acquiring relevant information on the clinical progression of the patient, securing testing materials for further serological and antigen diagnostics (both cerebrospinal fluid and serum collected before plasmaphereses were secured) from the clinical facility, and also sending these materials to the Virology Laboratory at the NIPH–NIH NRI for further diagnostics. These actions resulted in proper case classification and EpiPulse reporting.
- The second case was an adult with no travel history from southern Poland, who developed rapidly progressing meningitis, preventing the conduction of an epidemiological interview. As in the first case, preliminary non-specific sero-diagnostics were positive for WNV. Due to cross-reactivity with other flaviviruses, additional effort was undertaken to secure clinical material collected on hospital admission. The fellow facilitated sending samples for testing to the Virology Laboratory at the NIPH–NIH NRI, where broadened sero-diagnostics showed inconclusive results, but suggested possible Usutu virus infection. The fellow participated in joint meetings of the Chief Sanitary Inspectorate, NIPH–NIH, Chief Veterinary Inspectorate, and the National Institute of Haematology and Transfusion Medicine, where further strategy was discussed. As a conclusion, samples were sent to the Consortial Reference Laboratory for sero-neutralisation testing, and Usutu virus was confirmed.
- The third case was an adolescent from central Poland, with recent history of international travel. The fellow facilitated correct case classification according to the EU case definition, including excluding tick-borne encephalitis virus (TBEV) infection.

2. Applied public health research

2.1. Changes in anti-hepatitis A seroprevalence in selected birth cohorts between 2013 and 2023 in Poland

Supervisors: Małgorzata Sadkowska-Todys, Magdalena Rosińska, Małgorzata Stępień (NIPH–NIH NRI, Warsaw, Poland).

Aim: To estimate seroprevalence of specific anti-hepatitis A virus (HAV) antibodies in three birth cohorts (1965–1969, 1970–1974, 1975–1979) before and after the 2017 hepatitis A epidemic in the Polish general population.

Methods: Serum samples from defined birth cohorts were drawn from serum banks compiled during three cross-sectional, general population studies conducted in the years before the hepatitis A epidemic (2013–2016) and after it (2021–2022 and 2023) and tested for anti-HAV antibodies. Original cross-sectional studies adopted two different sampling methodologies but were representative of the general population. Birth cohort-specific seroprevalence was defined as the proportion of sero-positive persons among all the persons tested in that cohort. Results were weighted for sex and settlement area type (city/non-city).

Results: A total of 4 392 samples were tested. Seroprevalence before the hepatitis A epidemic was 46.6% (95% confidence interval (CI): 41.9–51.4) in the 1965–1969 birth cohort, 31.4% (95% CI: 26.9–35.8) in the 1970–1974 cohort, and 19.1% (95% CI: 15.5–22.7) in the 1975–1979 cohort. After the epidemic, there was a decrease in seroprevalence of 11.3%, 3.9% and 1.8% in the respective birth cohorts.

Public health implications/Conclusions: The older the birth cohort was, the higher was its seroprevalence and the less it was affected during 2017 epidemic, suggesting an effect of prior immunity. These seroprevalence levels can determine priorities for vaccination in future epidemics. However, the greater decrease in seroprevalence in the oldest birth cohort might indicate waning immunity, which should also be considered when prioritising birth cohorts for vaccination.

Role: The fellow wrote the protocol, conducted all the analyses, finalised the report, and wrote a manuscript for submission to a peer-reviewed journal.

2.2. Factors associated with the presence of anti-hepatitis A virus antibodies in Poland's general population: results from a 2023 cross-sectional study

Supervisors: Małgorzata Sadkowska-Todys, Magdalena Rosińska, Małgorzata Stępień (NIPH–NIH NRI, Warsaw, Poland).

Aim: To estimate anti-HAV seroprevalence and identify subpopulations for vaccination prioritisation in the event of an outbreak in the general Polish population of 2023.

Methods: We conducted a country-wide, cross-sectional study in the general Polish population of 2023, using stratified random sampling with the Random Digit Dialling method. We tested participants for anti-HAV antibodies using the ELISA method, collected data on socio-demographic characteristics (from participants of all ages), and previous anti-HAV vaccination and infection statuses (from participants over 20 years old). We counted age-group seroprevalences and performed multivariable logistic regression with age group, sex, settlement/area type (city/non-city), previous infection or vaccination status, voivodeship/region as predictors to calculate odds ratios (OR) with 95% CI for being seropositive.

Results: In total, 7 437 persons aged between 0–94 years old were tested (3 353 males and 4 084 females). Seroprevalence increased with age from 7.5% in the 0–19 age group (95% CI: 6.3–8.9) to 88.4% in the 70+ age group (95% CI: 86.7–90.0). No differences were found between voivodeships/regions within these age groups. The odds of being seropositive rose with age: from 3.4 (95% CI: 2.4–4.9) in the 40–59 age group to 89.1 (95% CI: 60.9–133.5) in the 70+ age group. Furthermore, vaccinated persons had 10.3 times higher odds of being seropositive (95% CI: 6.2–17.3). However, this effect was weaker in the older age groups.

Public health implications/Conclusions: For an HAV outbreak, vaccinations are offered to all persons exposed, regardless of their age. Our study shows that more efforts should be made to reach younger age groups for vaccination, irrespective of their socio-demographic characteristics, especially when availability of vaccines is limited.

Role: The fellow planned the study, conducted all the analyses, wrote an abstract and presented the findings of the study at an international scientific conference.

2.3. Validity of self-reported vaccination and previous infection status for different types of viral hepatitis: conclusions from the 2023 general population-based cross-sectional study in Poland

Supervisors: Małgorzata Sadkowska-Todys, Magdalena Rosińska, Małgorzata Stępień (NIPH–NIH NRI, Warsaw, Poland).

Aim: To compare self-reported previous infection status with laboratory-confirmed results for hepatitis C virus (HCV)- and HAV-tested participants.

Methods: We used data from the 2023 repeated cross-sectional study in the Polish population, with a nested panel of participants attending all three study rounds. A total of 1 686 persons over 20 years old were tested for anti-HAV, anti-HCV antibodies, and hepatitis B surface antigen (HBsAg) by ELISA, and asked about previous HAV, HCV infection and anti-HAV vaccination. 'Inconsistency' was defined as having a negative test result while self-reporting infection or vaccination, or vice versa. We performed multivariable logistic regression to explain the impact of age, sex, education, place of residence, and profession on inconsistency.

Results: For HAV, 511 participants (30.3%) self-reported the disease or vaccination, and 916 (54.3%) had antibodies. For HCV, 45 (2.7%) self-reported the disease, and 20 (1.2%) had antibodies. Out of 36 persons reporting HCV infection but testing negative, 35 had anti-HAV antibodies. For seven persons reporting HAV infection but testing negative, one had HBsAg. Overall, 1 052 (62.4%) and 46 (2.7%) persons were inconsistent for HAV and HCV, respectively. The OR for inconsistency increased with age compared to the 20–39 age group, from 1.8 (95% CI: 1.1–2.8) in the 40–59 age group to 14.3 (95% CI: 8.5–24.7) in the 70+ age group. Odds of inconsistency were higher among participants with a lower level of education (OR= 2.1, 95% CI: 1.3–3.5).

Public health implications/Conclusions: Self-reported information on HAV and HCV infection or HAV vaccination lacks reliability, particularly among older adults and those with a lower level of education. That may introduce bias in studying self-reported prevalence across different populations. Thus, verification through serological testing or medical documentation is recommended.

Role: The fellow planned the study, conducted all the analyses, wrote an abstract and submitted it to an international scientific conference.

3. Teaching and pedagogy

Outbreak investigation and usage of outbreak investigation tools: training for public health professionals, NIPH–NIH NRI, Warsaw, June–December 2024

The fellow led a virtual training programme for 90 public health professionals, from 20 local and 16 regional units. Two interactive presentations were developed: 'Outbreak investigation – analysis of the source of infections or intoxications (pol. *Dochodzenie epidemiologiczne, analiza źródeł zakażenia lub zatrucia*) and Registry of Epidemic Outbreaks (ROE) system – selected aspects of the usage and functionalities of the system (pol. *System ROE – Rejestr Ognisk Epidemicznych*). The programme was distributed into two sessions, six hours each, and involved both presentations and interactive discussions. The training programme was evaluated through a questionnaire, in which participants rated the content and delivery positively, though some noted that the material may have been too basic.

4. Communications related to the EPIET/EUPHEM fellowship

4.1. Manuscripts published in peer-reviewed journals

- **Polanski P**. Wirusowe zapalaenie wątroby typu A. „Nadzór Epidemiologiczny w Zdrowiu Publicznym" (*English translation: Hepatitis A. Chapter in a book titled Epidemiological Surveillance in Public Health*) PZWL. [book chapter submitted; publication pending]
- **Polanski P**, Rosinska M, Stepien M, Sadkowska-Todys M. Changes in anti-hepatitis A seroprevalence in selected birth cohorts between 2013 and 2023 in Poland as evidence-based guidance for future vaccination strategy. [manuscript submitted to *Eurosurveillance* on 12 November 2025; publication pending]

4.2. Conference presentations

- **Polanski P**, Rosinska M, Nowacka Z, Stepien M, Sadkowska-Todys M. Factors associated with the presence of anti-hepatitis A virus antibodies in Poland's population: results from a 2023 cross-sectional study. Submitted to ESCAIDE 2025, 19–21 November 2025 [abstract accepted for poster presentation].
- **Polanski P**, Rosinska M, Stepien M, Sadkowska-Todys M. Changes in anti-hepatitis A seroprevalence in selected birth cohorts between 2013 and 2023 in Poland. Submitted to 12th TEPHINET Global Scientific Conference 2025, Berlin, 2–5 June 2025 [abstract rejected, conference cancelled].
- **Polanski P**, Rosinska M, Stepien M, Sadkowska-Todys M. Changes in anti-hepatitis A seroprevalence in selected birth cohorts between 2013 and 2023 in Poland. Submitted to ESCMID Global 2025 (late braker), 11–15 April 2025 [abstract rejected]

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- **Polanski P**, Rosinska M, Stepien M, Sadkowska-Todys M. Changes in anti-hepatitis A seroprevalence in selected birth cohorts between 2013 and 2023 in Poland, Submitted to ESCAIDE 2025, 19–21 November 2025 [abstract rejected].
- **Polanski P**, Kotronia E, Nowacka Z, Rosinska M, Stepien M, Sadkowska-Todys M. Validity of self-reported status of vaccination and previous infection for different types of viral hepatitis- conclusions from 2023 general population based cross-sectional study in Poland, Submitted to ESCAIDE 2025, 19–21 November 2025 [abstract rejected].
- Kitowska W, Milczarek M, Kosyra M, **Polanski P**, Sadkowska-Todys M. Sporadic vs. Outbreak-associated salmonellosis cases in the Polish surveillance system in years 2018–2023. Submitted to ESCAIDE 2025, 19–21 November 2025 [abstract rejected].

4.3. Other presentations

- **Polanski P**. HAV outbreak in public school in Mazowieckie voivodeship (oral presentation). Presented at: Project Review Module, 28 August 2024, Lisbon, Portugal
- **Polanski P**. Hepatitis A in Poland in years 2013–2016, study protocol (oral presentation). Presented at: Internal Department's meeting on 23 October 2024, at NIPH–NIH NRI in Warsaw, Poland
- **Polanski P**. Hepatitis A in Poland in selected birth cohorts in years 2013–2023, Project description and findings (oral presentation). Presented at: Internal Department's meeting on 23 October 2024, at NIPH–NIH NRI in Warsaw, Poland

- **Polanski P**. Outbreak investigation and analysis of the source of infections or intoxications (oral presentation). Presented twice during the fellowship's training activities: on 24 September and 18 December 2024, Warsaw, virtual

5. EPIET/EUPHEM modules attended

- Intro to R, 19–22 September 2023, virtual
- Introductory Course, 25 September–13 October 2023, Spetses, Greece
- Study Protocol and Scientific Writing, 26–27 October and 7–8 November 2023, virtual
- European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2023, 22–24 November 2023, Barcelona, Spain
- Multivariable Analysis, 19–23 February 2024, Berlin, Germany
- Vaccinology, 4–8 March 2024, virtual
- Writing Abstracts for Scientific Conferences, 20 March 2024, virtual
- Qualitative Research, 19 and 22 March 2024, virtual
- Rapid Assessment and Survey Methods, 15–19 April 2024, Dublin, Ireland
- Public Health Microbiology I – Basic phylogeny, 17–18 June 2024, virtual
- Project Review Module, 26–30 August 2024, Lisbon, Portugal
- European Scientific Conference on Applied Infectious Disease Epidemiology (ESCAIDE) 2024, 20–22 November 2024, Stockholm, Sweden
- Time Series Analysis, 9–13 December 2024, Utrecht, the Netherlands
- Writing Abstracts for Scientific Conferences, 31 March 2024, virtual
- Project Review Module, 25–29 August 2025, Lisbon, Portugal [date of the exit interview precedes the date of the module]

6. Other training

- Clinical Epidemiology, 17–19 April 2024, NIPH–NIH NRI, Warsaw, virtual
- Epidemiology of Non-infectious Diseases internship, 4–11 November 2024, WIHE, Warsaw, Poland
- Epidemiology of Infectious Diseases internship 5–8 November 2024, NIPH–NIH NRI, Warsaw

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Special thanks to Eftychia Kotronia, an EPIET alumna, for her help and brainstorming, which resulted in many interesting angles for analyses in my projects.

Many thanks to my colleagues: Zuzanna Nowacka for explaining the nuances of *Ogólnopolskie Badanie Seroepidemiologiczne COVID-19: OBSER-CO* (OBSER-CO) databases as well as preparing databases quickly and thoroughly, and Marta Kosyra for helping in our public health training activity.

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