

# MediPIET Summary report of work activities

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Palestine, 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](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

Ayham graduated with a degree in medicine and surgery from the University of Science and Technology in Sana'a, Yemen, in 2009. He then did my internship as a medical doctor in Jeddah, Saudi Arabia, under the supervision of Umm-Alqura University, and did general practice and public health in Jeddah for six years before travelling to Palestine to work in the primary healthcare directorate in 2017. In 2020, He was assigned to the COVID-19 triage centre in Nablus as its acting director, then as head of the preventive medicine department in Nablus district, which is where he currently works.

### Fellowship

On 14 September 2021, Ayham A. Sawalmeh started his MediPIET fellowship at the Preventive Medicine Department, Nablus, Palestine. This report summarises the work performed during the fellowship.

**National supervisor(s):** Dr.Dia'a Hjaijeh

**Scientific coordinator:** a year with each respectively: Danis Kostas, Emily White Johansson

# Fellowship projects

## 3. Surveillance

### *Evaluation of the surveillance system for acute flaccid paralysis before and during COVID-19 in Palestine, 2014–2021*

**Introduction:** A nationwide Acute Flaccid Paralysis (AFP) surveillance system is the gold standard for detecting cases of Poliomyelitis and is a main component of the WHO's Global Polio Eradication Initiative (GPEI). Since the COVID-19 pandemic could potentially have a negative impact on surveillance systems, we compared the performance of the Palestinian national AFP surveillance during 2020-2021 with earlier years.

**Methods:** We made a descriptive retrospective study from the surveillance dataset provided by the Palestinian Ministry of Health and we evaluated the attributes of the AFP surveillance in Palestine from 2014 to 2021 for completeness, timeliness, and sensitivity by comparing it to the WHO AFP-surveillance standards for certification. Timeliness was measured as samples reaching the laboratory within three days and as results reported back within 14 days of reaching the laboratory; completeness was measured as having no missing data on the investigation form, collecting adequate samples and performing a follow up investigation after 60 days; sensitivity was measured as having two or more AFP samples per 100 000 population per annum.

**Results:** A total of 286 AFP cases (57% male) were reported between 2014 and 2021 in the West Bank (65%) and Gaza (35%). Of these, 54% were 0–5 years old. Completeness was >98%. Of all samples, 70% (SD=13) reached the laboratory within three days of being taken. Sensitivity of the system met the WHO criteria between 2014 and 2019 (2.4 per 100 000), but dropped in 2020–2021 (during the pandemic) to (0.9 per 100 000).

**Conclusions:** We concluded that sensitivity was affected by the pandemic and made recommendations to the ministry of health to bolster it to reach the WHO-set criteria, such as training new public health staff and enforcing the reporting mandate more vigorously.

I was the principle investigator for the surveillance system evaluation, wrote the protocol, acquired the data with the help of my supervisor Dr Dia'a Hjaijeh from the preventive medicine department statistics section, data analysis, writing the results, conclusions and recommendations before submitting the abstract, which was subsequently accepted for ASTMH in Chicago. However, due to difficulties with the protracted process of US visa acquisition and conflicting schedules, I requested permission to present it in a virtual setting and it was granted; I presented it on 21 October 2023 at the ASTMH conference.

**Supervisor:** Dr Dia'a Hjaijeh

**Status:** Completed

## 4. Outbreaks

### *An outbreak investigation for a toxicological event of phosphine gas poisoning in Bethlehem, Palestine 2022*

**Background:** In December 2022, Bethlehem, multiple residents from one building were admitted to a hospital with dyspnea and gastrointestinal upset that progressed to deteriorating consciousness. We hypothesised that it was a toxic agent since one of the residents used Phosphene gas as a fumigant on 18 December 2022. We investigated to confirm the source, exposure and implement control measures if necessary.

**Methods:** We defined cases as anyone in the building that suffered tremors, ataxia, dyspnea, cough or gastrointestinal upset between 18 and 22 December 2022. We identified cases by interviewing heads of households for all the apartments and used a retrospective cohort study, and also inspected the building's infrastructure and apartment layout. Measures of association were calculated, and the cohort was the inhabitants between 18 and 20 December 2022.

**Results:** We identified 14 cases: nine visited GP/ER and were discharged, five cases were hospitalised, of which two were admitted to ICU, and in total there were two deaths. There were no cases from adjacent apartments to Apartment 5, but 93% (n=13) of cases lived in the east wing (RR=15.3: p<0.001: 95%CI=2.2-105). This confirmed an association between cases and the vertical proximity to Apartment 5 in the east wing, where over 100 aluminium phosphide capsules were found and the gas detectors' reading was 350 PPM, the east-wing had a blocked ventilation shaft trapping the toxic agent and circulating it back.

**Conclusions:** Epidemiological and environmental investigations confirmed that aluminium phosphide used as a fumigant by one of the residents was the source of exposure. We immediately recommended the evacuation of the building and securing a perimeter until safety was reestablished, we communicated these findings to the Healthcare Directorate. We also recommended better regulations and control over the acquisition of aluminium phosphide.

I was the principal investigator, writing the protocol, developing the survey, submitting it for approval with the ethics committee, conducting the interviews, getting informed consent from the participants, collecting the data, doing data entry, analysing the data and writing the report, my coinvestigator doing the environmental health investigation in this outbreak was Samer Sawalha.

I submitted the abstract to the EMPHNET abstract call for the 8th conference and it was accepted for an oral presentation, I presented this toxicological outbreak investigation in the EMPHNET regional conference in Amman, Jordan on 22–24 October 2023.

**Supervisor:** Dr Dia'a Hjaijeh

**Status:** Completed

## 5. Research

### *Hepatitis B patients' adherence to treatment in relation to knowledge, attitudes, and practices (KAP) in the West Bank, Palestine 2022–2023*

**Background:** Hepatitis B is an infectious disease that inflicts a high health and economic cost on the healthcare system. Poor adherence to treatment increases that cost. We aimed to assess the level of knowledge, attitudes, and practices (KAP) amongst patients in the West Bank, Palestine, and identify factors associated with good adherence.

**Methods:** We conducted a cross-sectional study surveying hepatitis B patients visiting primary healthcare from October 2022 until June 2023 using an interviewer administered questionnaire covering qualitative and quantitative aspects regarding hepatitis B, we used R to analyse the data.

**Results:** Among 386 participants, Median age was 45 years ranging from 20–81 years, 42% were female, 90% had an education of secondary school or above, 88% had good adherence to treatment, Mean knowledge score was 11.4 (on a 13-point scale), mean attitude score was 3.4 (on a 4-point scale), mean practices score was 6 (on a seven-point scale), The mean overall KAP score was 21.8 (on a 24-point scale). Between KAP components (Cronbach alpha = 0.820) and KAP scores were correlated with good adherence ( $P < 0.001$ ). After adjustment for age, sex, education, and income, participants with good KAP score had 1.5 times better adherence to treatment than those without (prevalence ratio: 1.49, 95% CI: 1.30–1.74,  $p < 0.001$ ).

**Conclusions:** KAP scores were correlated with the level of adherence to treatment, we recommend more investment in education and awareness campaigns to achieve better adherence to treatment in hepatitis B patients.

I was the principal investigator writing the proposal form, then the research protocol, prepared the questionnaire and provided a translated version of the questionnaire to standardize the translation to Arabic, applied for ethics committee approval, provided training to interviewers and joined them in collecting data, entered data from paper form to digital, cleaned data, data analysis on R, writing the conclusions, recommendations, report and then manuscript.

**Supervisor:** Dr Dia'a Hjaijeh

## 6. Scientific communication

### Conference presentations

- National Focal Points for MediPIET meeting (Stockholm, November 2022): Oral presentation of the AFP surveillance study.
- EMPHNET (scheduled for Amman, October 2023 but postponed until further notice): Accepted for an oral presentation of the outbreak investigation for a toxicological event of phosphine gas poisoning in Bethlehem, Palestine 2022 (conference postponed, presentation not completed).
- American Society of Tropical Medicine and Hygiene (ASTMH) annual meeting (Chicago, October 2023): Poster presentation (online) for the AFP surveillance study.

### Publications and outputs

- Ayham Sawalmeh, Danis Kostas, Emily White Johannson, Dia'a Hjaijeh. Evaluation of the surveillance system for acute flaccid paralysis before and during covid19 in Palestine, 2014-2021. ASTMH 2023 annual meeting poster presentation, Abstract#6723 in ASTMH 2023 abstract book. Presented on 21 October 2023.
- Manuscript pending final approval by FLC and coauthors before submitting for publication titled: Hepatitis B patients' adherence to treatment in relation to knowledge, attitudes, and practices (KAP) in the West Bank, Palestine, 2022–2023.

## 7. Teaching activities

- **Epidemiological surveillance, COVID-19 vaccination and situation in the district of Nablus, Palestine (21 December 2021):** Main trainer in an activity targeting an NGO called Jothoor, the nursing and health administration staff regarding COVID-19 vaccination coverage in rural areas in the district of Nablus. Developed the presentation and presented it. The event took place in the Jasmine Hotel in the Nablus district, and lasted two hours.
- **Public health protocols on the management of hepatitis B in Palestine (28/July/2022):** A speaker for an event hosted by Najah university hospital for Hepatitis international day on the in Najah university hospital in Nablus, Palestine, developed the presentation and presented it to an audience of healthcare professionals in Najah university hospital auditorium, the presentation was 30 minutes.
- **Training of trainers for AFP and measles surveillance (December 2022):** Primary instructor for the training in Nablus district targeting healthcare professionals and infection control officers, the training took place in the primary healthcare meeting hall and was for one hour each day for around three weeks.
- **AFP and measles surveillance in Nablus (15 December 2022):** Trainer in a session targeting the union of private hospitals pediatrician conference in the Yildiz Palace Hotel's conference room and was for 30 minutes.

## 8. International assignments

None.

## 9. Other activities

- **Pandemic management for healthcare practitioners (10 to 14 July 2023):** Attended a training course in Singapore under the enhanced technical assistance package for the Palestinian authority and conducted by the civil service college as part of the Singapore cooperation program (SCP) under the ministry of foreign affairs of Singapore, the module took place in the JEN Tanglin hotel conference hall in Singapore.
- **Member of the infection control committee of Nablus primary healthcare.**
- **COVID-19 in Nablus:** Almost all COVID-19-related facets with regards to vaccination, vaccine certificates, PCR tests, PCR negative certificates, home quarantine orders and sick leave days for quarantine, COVID-19 inquiries by the public, reporting, data registry, communication with the public in quarantine and positive cases for the district of Nablus were under my direct supervision and direct involvement. I was interviewed on three occasions by local radio stations regarding the COVID-19 situation in the Nablus district and had multiple meetings with the emergency COVID-19 committee to discuss the next steps.
- **Training of trainers for revised TB and HIV diagnoses and screening protocols in August 2023.**
- **Attended ESCAIDE 2021 virtually.**
- **Attended ESCAIDE 2022 in Stockholm in person.**
- **Attended ESCAIDE 2023 in Barcelona in person.**

## 10. MediPIET modules attended

1. Introductory course part 1, 20 September 2021 to 8 October 2021, virtual.
2. Inject days Phylogeny, Operational research, and Data collection 20 October 2021, 26–27 October 2021, 10–11 November 2021, all virtual.
3. Outbreak investigation module, 6 to 10 December 2021, virtual.
4. Multivariate analysis module 14 to 18 March 2022, followed by an inject day for the same on 30 March 2022. all virtual.
5. Introductory course part 2 and PRM 1, 20 to 29 April 2022, in person, Spetses, Greece.
6. RAS and mass gatherings module, 6 to 10 June 2022, in person, Stockholm, Sweden.
7. PRM 2, 29 August to 2 September 2022, in person, Lisbon, Portugal.
8. Time-series analysis, 7-11/11/2022, in person, Utrecht, Netherlands.
9. Qualitative research inject days 31 January 2023, then on 3 February 2023, virtual.
10. CBRN module, 13 to 17 March 2023, in person, Petrovac, Montenegro.
11. Vaccinology inject day 29 March 2023, virtual.
12. One Health and Vector-borne diseases, 2 to 4 May 2023 and 15 to 17 May 2023, virtual.
13. PRM 3, 28 August to 1 September 2023 in person, Lisbon, Portugal.

## 11. Personal conclusions of fellow

Despite all the challenges and difficulties, it was worth it in the end, for what is a better measure of improvement than becoming a better and more knowledgeable version of oneself? The improvement was tangible and on various fronts, from technical to communication to networking to finding a better drive for improvement. Meeting people with different expertise in other fields and different viewpoints helped expand my horizons, and with regards to MediPIET, I would certainly recommend it to my colleagues, and I hope to continue and build on what was gained in the future.