

MediPIET Summary report of work activities

Jebril Gebril

Libya, Cohort 5 (2022)

Background

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 has been 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>

Pre-fellowship short biography

Jebril Gebril received a medical degree from the faculty of Medicine, University of Sabha, Libya in 2016. He worked at Sabha Medical Center at the department of radiology for two years before joining the HIV and Sexually Transmitted Diseases (STD) Department at the National Center for Disease Control in Libya. During the COVID-19 pandemic he was responsible for the COVID-19 daily national bulletin. He is a member of the Emergency Operation Centre in the Office of Surveillance and Epidemiology. He joined MediPIET Cohort 5 in 2022.

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

In 2022, Jebril Gebril started his MediPIET fellowship at the National Centre for Disease Control, Tripoli, Libya. This report summarises the work performed during the fellowship.

National supervisors:

Miluda Rajab

Taher Emahbes

Scientific coordinators:

Katie Palmer

Kostas Danis

Fellowship projects

1. Surveillance

Title of the project

Evaluation of a malaria surveillance system in Libya, 2023.

Abstract

Background: Malaria is a significant global health concern and is a disease which particularly affects children under five and pregnant women, with high rates of illness and death. Successful eradication of malaria requires a robust surveillance system. An evaluation was conducted on Libya's malaria surveillance system to determine its effectiveness and adherence to established goals. In the study, we described and evaluated the Malaria Surveillance System in Libya.

Methods: The evaluation was conducted using the ECDC technical handbook for data quality monitoring and surveillance system evaluation.

Results: Of 154 malaria cases recorded in 2023 (males=83.7%, 129/154) most were from Sudan or were Libyan citizens traveling to Niger and Sudan. Responses from the Roll Back Malaria focal persons indicated that the surveillance system was generally simple, useful, flexible, and acceptable but not representative, as there are no data from private healthcare facilities. They expressed a need for more training and feedback. Timeliness was low, with only 58.0% (83/143) of cases reported within the target of seven days. However, all focal persons reported acceptable times for carrying out malaria testing and issuing results.

Conclusion: The malaria surveillance system in Libya is flexible, simple and useful. While diagnostic turnaround was efficient, delays in starting treatment remain a challenge and the system is not fully representative. Efforts should be made to improve reporting timeliness, strengthen training and feedback, and integrate private sector data to improve future prevention and control of malaria in Libya.

Role and outputs: The role of the fellow was to develop the questionnaire, participate in data collection, and write the final report. The manuscript was submitted for publication in a scientific journal, pending review.

Supervisors:

Taher Emahbes and Miluda Rajab

2. Outbreaks

Title of outbreak

Investigation of a measles outbreak in Al-Karamah neighborhood, Sabha, Libya, January - March 2023.

Background Measles is a preventable disease that can be managed through immunisation. In Libya, as of 27/01/ 2023, there were 299 measles cases reported in the neighborhood of Al-Karamah. We aimed to describe the cases, estimate the extent of the outbreak, and implement control measures.

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

Methods: We defined suspected cases as persons with measles symptoms in the neighbourhood from 27 /1/2023 to 27 /3/ 2023 and confirmed cases as those with positive IgM antibodies (IgM+). We collected data on demographic characteristics, signs and symptoms, and vaccination status, using a structured form.

Results: We identified 299 suspected measles cases with a median age of six years (range 1 month to 65 years); 154 (52%) cases were female. Fifty cases were laboratory-confirmed (IgM+). The first seven reported cases occurred in migrants from bordering countries who were not vaccinated. Of 38 cases, 24 were transmitted within a family/household and five within a school setting. Of all cases, 24% had not been vaccinated with the measles-mumps-rubella (MMR) vaccine. No deaths occurred.

Conclusion: This measles outbreak can be attributed to the presence of individuals who were not vaccinated in certain pockets of the population and immigration. To prevent future outbreaks, community awareness, enhanced surveillance, and strengthening routine measles immunisation are recommended.

Role and outputs:

The role of the fellow was to develop the questionnaire, participate in data collection, and write the final report. The manuscript was submitted for publication in a scientific journal, currently pending review.

Supervisors:

Taher Emahbes and Miluda Rajab

3. Research

Title of research project

Seroprevalence of HIV, hepatitis B, and C infections among pregnant women in Libya, 2023-2024

Introduction: Globally, hepatitis B virus (HBV), hepatitis C virus (HCV), and HIV are major health threats. In Libya, data on these infections among pregnant women are scarce. We aimed to estimate the prevalence and identify risk factors of infectious diseases among pregnant women to establish evidence-based preventive policies.

Methodology: In this cross-sectional study, a simple random sample of pregnant women was selected from three randomly chosen antenatal clinics (one public and two private) in Libya. Between January 2023 and January 2024, we interviewed participants face-to-face to collect information on sociodemographic characteristics and risk exposure histories. All participants were tested for HBV, HCV, and HIV. We estimated prevalence with 95% confidence intervals (95%CI) and calculated prevalence ratios (PR) using log-binomial regression.

Results: A total of 975 pregnant women were included. The mean age was 32.9 ± 6.67 years; 69 (7%) were non-Libyan, and 498 (51%) women had high levels of education. Six (0.6%, 95% CI=0.02-1.3%) pregnant women tested positive for HIV, 8 (0.8%, 95% CI=0.04-1.6%) for HBV, and 2 (0.2%, 95% CI=0.0-0.7%) for HCV. No co-infections were reported.

Conclusion: The estimated HIV, HBV, and HCV prevalence was low compared with global epidemiological data. We recommend enhancing screening procedures for those infections among pregnant women and continuing to promote community awareness of sexually transmitted infections, to reduce the adverse impacts of these diseases on public health.

Role and outputs: Jebriel wrote the protocol, developed the questionnaire, developed an informed consent form, submitted to ethical committee, analysed research data, and wrote the manuscript. The manuscript was submitted to a peer-reviewed journal. The fellow presented the results in a poster presentation at the ESCAIDE 2024 conference.

Supervisors:

Miluda Rajab and Taher Emahbes.

4. Scientific communication

Conference presentations

- Gebril J. Aqeehal H. Alarbi A. Ahlab H. Emahbes T. Danis K. Using Social Network Analysis during COVID-19 contact tracing in Libya, 2020. Poster session presented at 17th European Public Health Conference, 2024 Nov 13-15, Lisbon, Portugal.
- Gebril J. Ben Othman H. Elhshik E. Elarbi A. Abuabed N. Ahmad K. Emahbes T. Rajab M. Palmer K. Danis K. Seroprevalence of HIV, Hepatitis B, and C infections among pregnant women in Libya, 2023-2024. Poster session presented at ESCAIDE 2024 Nov 20-23, Stockholm, Sweden.

Publications and outputs

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

- Gebril J. Palmer K. Rajab M. Aqeehal H. Ben Othman H. Elhshik E. Elarbi A. Abuabed N. Ahmad K. Emahbes T. Danis K. Seroprevalence of Human Immunodeficiency Virus and Hepatitis B and C Viral Infection among Pregnant Women in Libya, 2023-2024. *Submitted manuscript*.
- Gebril J. Palmer K. Aqeehal H. Saadawi W. Emahbes T. Rajab M. Evaluation of a Malaria Surveillance System in Libya, 2023. *Submitted manuscript*.

5. Teaching activities

Title: Training workshops on public health emergency management in eastern flood-affected areas in Libya.

Jebril led a training activity from 25-28 February 2024, at Benghazi, Libya. Seventy participants underwent training, including surveillance officers, vaccination officers, and workers from the emergency department of the Ministry of Health, the health services directorate, Libyan Red cross, Libyan ambulance services, and the Emergency Medicine and Support Centre from seven flood-affected municipalities in eastern Libya.

To effectively manage public health emergencies, it is essential to understand and apply emergency management principles, which were the core of this course. These principles will give the participants the skills to coordinate and lead efforts to prepare and respond to crises. By implementing incident management concepts, participants can ensure a well-organised approach to mitigating the impact of public health emergencies.

The learning objectives were to 1) Improve knowledge regarding public health emergency management and Public Health Emergency Operations Centers (PHEOC), 2) understand the National Incident Management System, 3) understand the PHEOC operations through the Preparedness Cycle, Response, and Recovery, and 4) Learn about the PHEOC modes of operation work during a public health emergency response. Learning materials included PowerPoint presentations, case studies, and role-playing exercises.

6. Other activities

- Public Health Emergency Operation Centre manager during the emergency floods that happened on September 2023 of Eastern part of Libya.
- Head of the emergency team for the eastern flood affected areas.
- Head of the Epidemiology Office.
- Involved in development of event-based surveillance system.
- Involved in the development of incident management system.
- Several meetings regarding the flooding in eastern Libya floods with stakeholders includes meeting with Prime Minister and head of the high Council of State.
- Several press conferences and appearances on TV shows to provide information on the floods.
- Workshop on Risk Profiling and Internal Review of Emergency Preparedness, 13-16 May 2024, Tripoli, Libya.
- Coordination and facilitating the training of Healthcare Providers on HIV Prevention, Testing and Counselling. Sabha 8 - 10 May and Benghazi 14 - 16 May 2023.
- Certification of completion the HIV Testing and Counselling Guidelines Training of Trainer, 21 to 24 March 2023, Istanbul, Turkey.

7. MediPIET modules attended

- Introductory Course Module 26 Sep - 7 Oct 2022 Spetses, Greece, attended face to face.
- Operational Research Inject days, 8 - 10 Nov 2022, Online.
- Introduction to R/Stata 28 Nov - 1 Dec 2022, Online.
- Outbreak Investigation Module, 5 - 9 Dec 2022, Berlin, Germany, attended face to face.
- Qualitative Research inject days 31 Jan and 3 Feb 2023, Virtual.
- CBRN Awareness and Mitigation Module, 13 - 17 Feb 2023, Petrovac, Montenegro, attended face to face.
- Vaccinology inject day, 29 Mar 2023, Online.
- Multivariable Analysis Module, 22-26 May 2023, Frankfurt, Germany, attended face to face.
- Rapid Assessment and Survey Methods Module, 19 - 23 Jun 2023, Stockholm, Sweden, attended face to face.
- Project Review Module 28 Aug - 1 Sep 2023, Lisbon, Portugal, attended face to face.
- Time Series Analysis + GIS Module, 11 - 15 Dec 2023, Rome, Italy, attended face to face.
- One Health module, 3-7 Jun 2024, Belgrade, Serbia, Online.
- Project Review Module 26 - 30 Aug 2024, Lisbon, Portugal, attended face to face.

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

Personal conclusions of fellow

After completing the MediPIET fellowship, I have gained excellent skills and experience in field epidemiology. This programme has equipped me with the tools to conduct effective public health investigations, improve surveillance systems, and contribute to disease prevention efforts in my home country. The hands-on projects, such as evaluating the malaria surveillance system and investigating the measles outbreak, reinforced the importance of evidence-based decision-making in public health. The training workshops and modules improve my understanding of emergency management and research methodologies. Overall, this experience has solidified my commitment to improving public health systems and fostering collaborative networks for better health security in Libya and beyond.

Acknowledgements

I would like to express my gratitude to the following organisations and individuals for their invaluable support in completing the field epidemiology training programme.

First of all, I would like to express my sincere gratitude to my frontline coordinators Katie Plamer and Kostas Danis, supervisor Miluda Rajab, and co-supervisor Taher Emhabet for their support and guidance throughout the MediPIET program. Their insights and feedback have been helpful in shaping the scope and directions of this fellowship.

I am also grateful to Hanan Aqeehal, Hussain Ben Othman, Elham Elhshik, Ahmed Suleiman Elarbi, Nada Abuabed, Khadija Mohamed Ahmad, Walid Saadawi, Ahmed Alarbi, Husam Ahlab and Mohamed Hadi Abdelhamid, for their assistance with data collection, analysis, and interpretation, which made the assignments possible.

I would also like to express my gratitude to the national focal points, members of the Epidemiology office, the National Aids program, the surveillance and rapid response department, and the zoonotic disease control department for their constructive assistance.

Finally, I thank the Director General of NCDC Libya and the ECDC MediPIET team for providing the necessary facilities and resources to conduct my fellowship.

I extend my gratitude to all for your invaluable contributions that significantly enhanced the quality of the fellowship.