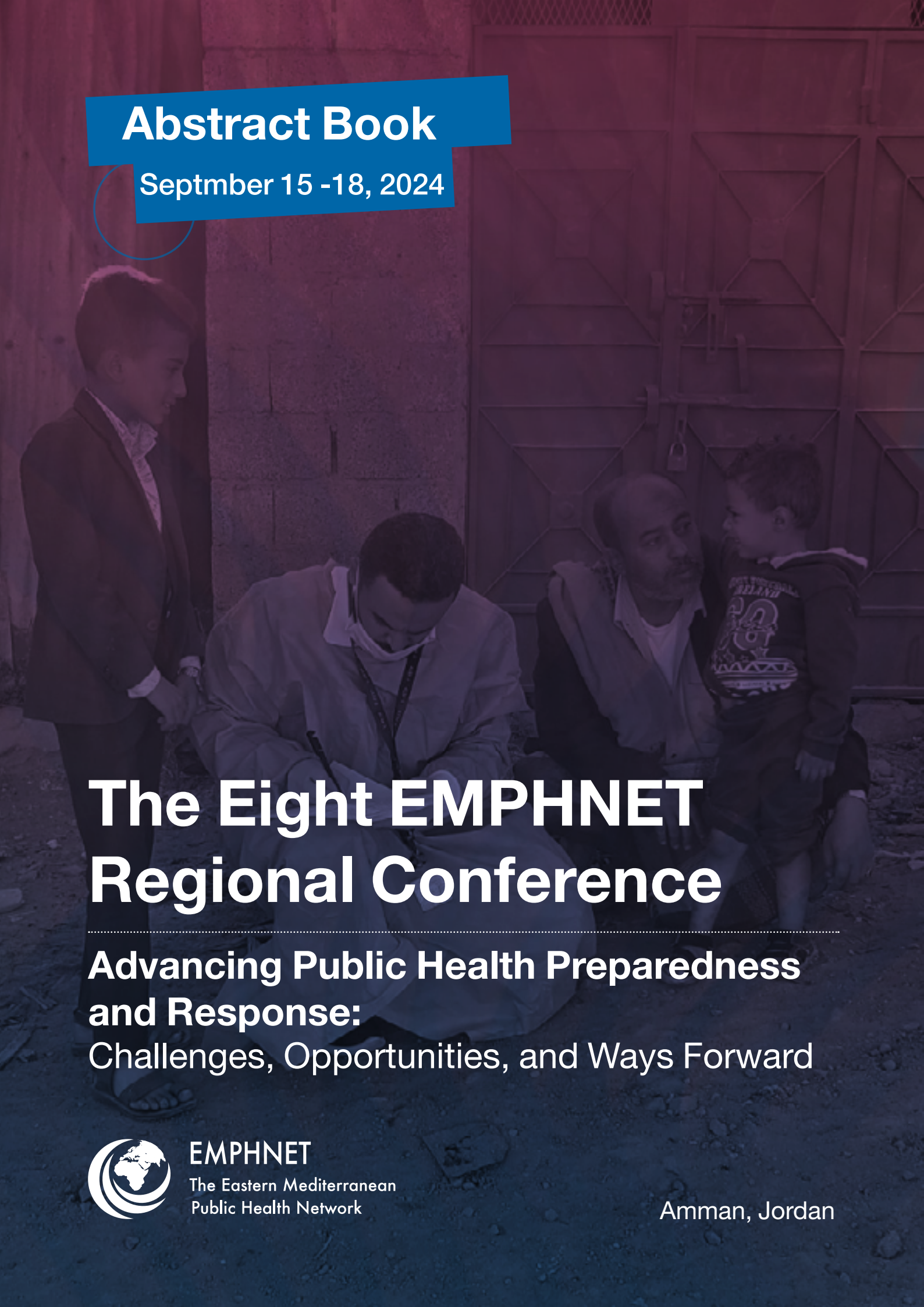


Abstract Book

Septmber 15 -18, 2024

The Eight EMPHNET Regional Conference

Advancing Public Health Preparedness and Response:

Challenges, Opportunities, and Ways Forward

EMPHNET
The Eastern Mediterranean Public Health Network

Amman, Jordan

TABLE OF CONTENT

PART ONE
ABOUT THE CONFERENCE

THE CONTEXT

The health and well-being of populations worldwide are at a pivotal, yet precarious, point. Public health emergencies due to political conflicts and wars, natural disasters, and emerging and re-emerging infectious diseases remain a big challenge. Furthermore, the COVID-19 pandemic unveiled health inequities and exposed striking weaknesses in pandemic preparedness and response. The long-existing gaps and bottlenecks in the global health security architecture and inadequate mechanisms for real-time epidemiological surveillance and monitoring during health emergencies have impeded public health systems from preventing, detecting, and responding to threats.

Over the past few years, the COVID-19 pandemic as well as other health events, disasters, and sociopolitical unrest affecting the world at large have all shed light on the importance of enhancing public health preparedness within country health systems. Achieving public health preparedness is crucial to ensure a state of national health security, i.e., a state in which a country and its people are prepared for, protected from, and resilient in the face of incidents with health consequences.

Being an integral part of national health systems, Field Epidemiology Training Programs (FETPs) and Rapid Response Teams (RRTs) have proven to be crucial assets in responding to public health emergencies.

As the world is experiencing the aftermath of the COVID-19 pandemic, it is timely to evaluate the current state of public health preparedness within countries' health systems and to thoroughly examine the challenges encountered as the world responded to the pandemic. It is of relevance to identify gaps seen, opportunities for growth, and the way forward to achieving global and national health security through public health preparedness within countries' health systems. This context inspired the theme for EMPHNET's Regional Conference.

THE CONFERENCE THEME

The central theme for the Eighth EMPHNET Regional Conference is ***"Advancing Public Health Preparedness and Response: Challenges, Opportunities, and Ways Forward".*** Within this theme, the conference sessions provide a platform through which EMPHNET will be renewing its commitment to supporting countries in the region towards achieving public health preparedness.

THE AGENDA

Within the conference's diverse agenda, sessions will offer a space to evaluate past challenges, identify public health opportunities, and identify ways forward to achieve higher levels of health security within the region and beyond.

With EMPHNET mandated to contribute to "better health for people in the EMR", the conference sessions will provide valuable opportunities for knowledge exchange and the exploration of means to advance public health preparedness and response. A wide range of topics may be dedicated to examining innovative solutions that can be implemented among multi-sectoral and multi-national partners to achieve public health preparedness as well as new opportunities to be explored.

The conference also offers a platform to showcase the scientifically grounded work of Field Epidemiology Training Program (FETP) residents and graduates, as well as other public health professionals who have chosen to share their achievements, research findings, field investigations, and other approaches within a wide participation base.

Thus, the conference agenda includes:

1. Conference workshops
2. Roundtables
3. Abstract Oral and Poster Presentations
4. A Keynote Address
5. Guest Speakers' Panel Sessions
6. Forums
7. Side Meetings

In Numbers:

- **12** Abstract Sessions
- **8** Roundtables
- **5** Conference Workshops
- **1** Keynote Address
- **3** Guest Speaker Panels
- **2** Forums
- **20** Side Meetings

The Abstract Sessions in Numbers:

- **65** Oral presentations
- **13** Poster presentations

The Abstract Sessions by Theme

- Communicable Diseases
- Disease Surveillance
- Immunization and Vaccine-Preventable Diseases
- Outbreak Investigations
- Polio and AFP Surveillance
- COVID-19
- Non-Communicable Diseases
- Public Health Surveillance
- Emergencies and Mass Gatherings
- Maternal and Child Health
- Others

View the full agenda

https://bit.ly/457m0z5

CONFERENCE OBJECTIVES

The conference objectives include:

- Engaging public health experts and national, regional, and international entities in a discussion about the opportunities, and ways forward towards achieving public health preparedness in the region and beyond.
- Facilitating experience exchange and knowledge sharing among public health professionals and entities to encourage coordination.
- Building on key lessons learned and challenges from the COVID-19 pandemic response.
- Analyzing, demonstrating, and sharing local, regional, and global public health lessons and expertise.
- Assessing efficiency in the translation of evidence-based science into action.
- the accomplishments of public health professionals from the region.

***The Sixth EMPHNET Regional Conference-Roundtable**: Mobile Data Collection and Other Innovative Tools to Enhance Decision Making*

PART TWO
PAST CONFERENCES

EMPHNET hosts regional conferences on a biennial basis, with the goal of creating a space for knowledge and experience exchange among public health professionals from the EMR and around the world. Over the past decade, hundreds of residents and graduates from FETPs and other public health professionals from the EMR have enriched the public health scene with insights from the field. EMPHNET's conferences enabled discussions on a wide range of topics that are relevant to the region. So far, seven conferences have been held.

THE FIRST EMPHNET REGIONAL CONFERENCE

It was conducted less than a year after the establishment of EMPHNET as a joint event with TEPHINET's Fourth Bi-regional Conference and the Seventh Conference of the Jordan Public Health Association. During this regional Conference, the topic of mental health was given special attention after being relatively ignored in the region. The Conference was held in Amman, Jordan, in 2009.

THE SECOND EMPHNET REGIONAL CONFERENCE

In the year 2011, EMPHNET and TEPHINET collaborated once again to organize the Second EMPHNET / Fifth TEPHINET Scientific Regional Conference in Sharm El Sheikh, Egypt.

Over 130 epidemiologists and public health professionals participated from the Middle East and North Africa Region (MENA). More than 80 scientific abstracts were presented.

THE THIRD EMPHNET REGIONAL CONFERENCE

This conference took place in Marrakech, Morocco in 2013, with the theme “Public Health Surveillance in the 21st Century,” emphasizing communicable and non-communicable diseases that pose vital concerns for most of the participating countries. There were 176 participants representing countries in MENA.

THE FOURTH EMPHNET REGIONAL CONFERENCE

The fourth conference’s theme was “Public Health in the Region: Challenges and Opportunities.” The Conference took place in Aqaba, Jordan, in 2015. Throughout the four days of the event, 200 participants from 18 countries attended the conference sessions.

THE FIFTH EMPHNET REGIONAL CONFERENCE

EMPHNET adopted the theme "Regional Contributions to Global Health Development" for this conference to highlight the efforts made by countries of the EMR in protecting the health of their communities and promoting health beyond their national borders. Held in Marrakech, Morocco, in 2016, the Conference saw the participation of FETP residents and graduates from Afghanistan, Egypt, Iraq, Jordan, Lebanon, Morocco, Pakistan, Saudi Arabia, Sudan, and Yemen.

THE SIXTH EMPHNET REGIONAL CONFERENCE

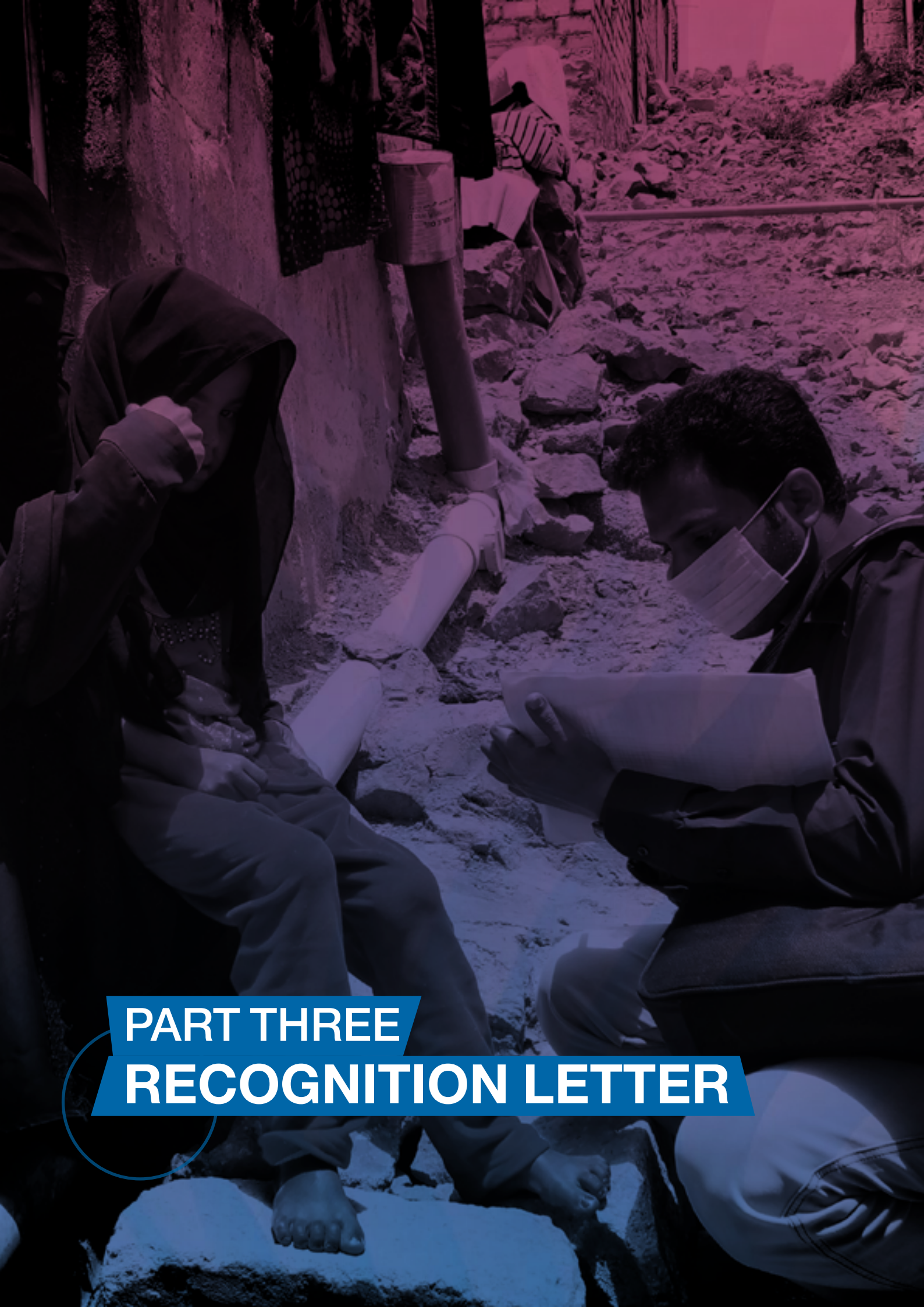
Taking place in Amman, Jordan in the year 2018, the Conference was held with the theme "Innovative Approaches: Adapting to the Current EMR Context." Representations from the region were from twenty countries, ten of which, have Field Epidemiology Training Programs: Egypt, Iraq, Jordan, Morocco, Pakistan, Saudi Arabia, Sudan, Tunisia, and Yemen.

THE SEVENTH EMPHNET REGIONAL CONFERENCE

The Seventh Conference was held in Amman, Jordan, between November 14 and 18, 2021 under the theme "Towards Public Health Resilience in the Eastern Mediterranean Region: Breaking Barriers." It was the first conference held after the onset of the COVID-19 pandemic, and it was a hybrid event including face-to-face as well as virtual participation. From 25 countries, over 113 abstracts were accepted for oral and poster presentations.

The abstracts covered a wide range of topics including COVID-19 response, Surveillance, Maternal and Child Health, Zoonotic Diseases, VPDs, NCDs, and others. The presentations given at the conference highlighted contributions and achievements of FETP residents and graduates as well as public health professionals from the region and beyond.

The Seventh EMPHNET Regional Conference:
Opening Ceremony



PART THREE
RECOGNITION LETTER

DR. NISSAF BOU AFIF
CHAIRPERSON OF THE FETP BOARD OF DIRECTORS

The time has come to recognize the ongoing, life-saving work of the **Field Epidemiology Training Programs (FETPs)** both in our region and beyond. Their response to public health threats and their role in increasing public health preparedness within their countries' health systems are both significant and commendable. We know that FETP leaders, residents, and graduates worked alongside frontline responders, and away from their families to protect their communities throughout the COVID-19 pandemic and other public health events. Their role in their countries was extensive from engagement in fieldwork to research, knowledge sharing, communication, and much more.

The Eight EMPHNET Regional Conference is a fitting recognition for the invaluable work of our region's FETP community over the many years. They will share experiences from one of the most affected regions by socio-political unrest, wars, and other public health challenges.

By sharing their experience, they will contribute to exploring ways of increasing public health preparedness in the face of existing challenges and any other threats of major consequence in the future. Let us take the opportunity and use the FETP power to prepare for the future.

Thank You
Nissaf Nou Afif
Chair Chairperson of the FETP Board of Directors

DR. MOHANNAD AL NSOUR
EIGHT EMPHNET REGIONAL CONFERENCE CHAIR
EMPHNET EXECUTIVE DIRECTOR

The EMR faces escalating public health emergencies that exacerbate existing issues within our health systems. While new challenges arise and old ones persist, there are significant progress opportunities. Recent achievements in many countries and the commitment of both international and regional stakeholders to strengthening health systems underscore these opportunities.

At this regional conference, our focus is on capitalizing on such opportunities. This edition of our regional conference will serve as a platform for discussing challenges, identifying issues, and, initiating conversations for enhancing our preparedness and response. We are delighted to welcome a broad and diverse group of professionals from across public health areas. FETP residents, rapid responders, emergency staff, immunization workers, and others from varied fields will contribute unique insights into context-specific issues that are not found elsewhere. Additionally, the high-level participation from our global health partners points out to the conference's potential important outcomes as stakeholders will gather to discuss and hopefully merge propositions that will benefit the the global community.

This conference will be highly relevant to the region's need to build robust public health systems, ensuring that countries are prepared, protected, and resilient in the face of health challenges. Let us exchange knowledge, share experiences, forge new connections, and draw on past lessons to enhance public health preparedness in our region.

Thank You
Dr Mohannad Al Nsour
Eight EMPHNET Regional Conference Chair/EMPHNET Executive Director

WORD OF THANKS FOR THE CONFERENCE COMMITTEES

Great potential lies in this conference, where FETP residents, graduates, as well as mentors, and public health workers from different areas share important lessons they have learned from the field.

This success would not have been possible without the work of all the conference's committee members. We thank them all for their hard work over the past months. We thank the Steering Committee for their overall guidance, the Scientific and Technical Committees for their important technical input, and the Organizing Committee for overseeing conference preparation in a timely and efficient manner. We also thank the countries and all those who were engaged in this work.

It's a collaborative effort that would not have been possible without the collaboration of the team.

EMPHNET's Team

PART FOUR
SYNOPSIS OF THE CONFERENCE WORKSHOPS

OPTIMIZING PREPAREDNESS AND RESPONSE FOR cVDPV OUTBREAKS WITH A PARTICULAR FOCUS ON cVDPV2

This workshop introduces epidemiological context of vaccine-derived Polio Virus (cVDPV) outbreaks focusing on cVDPV2 in the EMR. It also focuses on the challenges and lessons learned from countries' experiences, and on the recommendations for optimizing the preparedness and response activities to cVDPV outbreaks in the EMR. The session brings experts to identify current global, regional, and national gaps and challenges faced by the Expanded Program on Immunization, surveillance systems, and other health components in responding to cVDPV outbreaks. It also highlights the efforts needed to recover from the strains experienced during a pandemic, and to sustain immunization as an essential part of preparedness and response to VPD outbreaks focusing on polio.

FROM SIGNALS TO ACTION: ENHANCING RESPIRATORY DISEASE SURVEILLANCE WITH EVENT-BASED METHODS

This workshop engages participants in a discussion on the concept of Event-Based Surveillance (EBS), and its potential benefits for disease surveillance. It highlights best practices and lessons learned from case studies that have integrated into respiratory disease surveillance systems across various countries and contexts. The session provides a platform for sharing the challenges and opportunities of integrating EBS into existing surveillance systems, with the need for data collection, analysis procedures, and efficient communication between public health agencies and other stakeholders. It further focuses on different strategies for overcoming challenges and identifies areas for future research and collaboration.

The Seventh EMPHNET Regional Conference- Abstract Session

UTILIZING TOBACCO CONTROL EVIDENCE TO INFORM POLICIES AND PROGRAMS

This workshop highlights the further proven tobacco interventions and policies that should be implemented in the fight against the tobacco epidemic in the EMR, and that these interventions should be informed by data designed to target and refine implementation. The session aims to assist countries in prioritizing action areas from the MPOWER package of six evidence-based tobacco control policies. It focuses on selecting one priority action to improve the use of data for tobacco control based on impact and opportunity. The workshop further sheds light on common barriers to using tobacco control data for policies and programs in the prioritized action and on the countermeasures to counteract such barriers.

BUILDING PARTNERSHIPS FOR A SUSTAINABLE FETP *(By Invitation Only)*

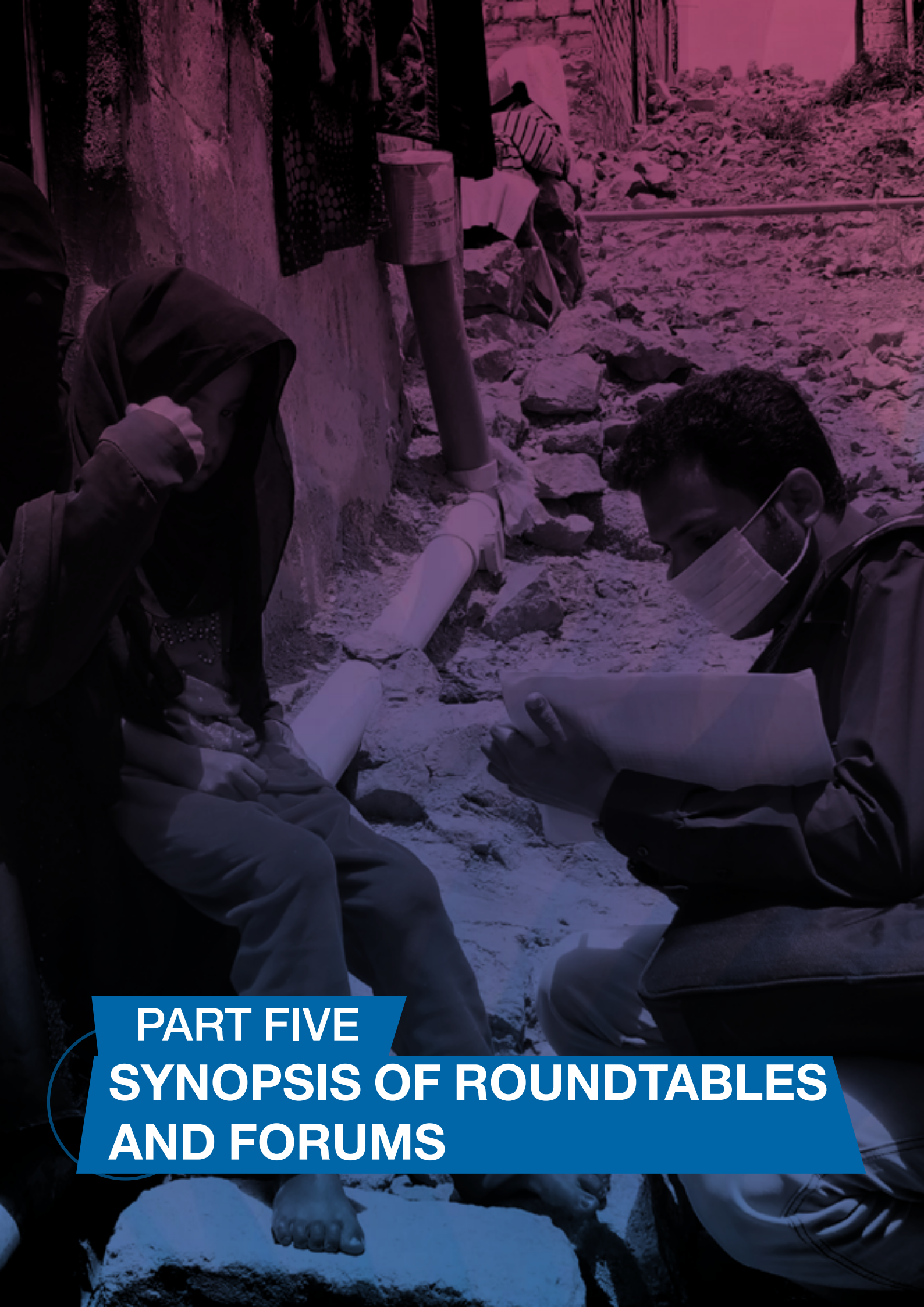
This workshop addresses the growing need to build partnerships for a sustainable Field Epidemiology Training Programs (FETP) future in the EMR. In addition, to identify potential partners at national, regional, and global levels. It also highlights the role of FETPs in contributing to global improvements in disease detection and response, and assisting in disease control and prevention. The session focuses on developing a conceptual framework for partnerships, creating an actionable plan for partners to support FETPs based on a sustainable model, and promoting cooperation. It further offers a space for discussing the strengths and weaknesses of partnership systems in different countries.

***The Seventh EMPHNET Regional Conference-Workshop**: Brucellosis Surveillance, Diagnosis and Control Using "One Health" Approach*

MENMAP IN THE REGION: ADVANCING MENINGITIS SURVEILLANCE AND LABORATORY CAPACITIES

This workshop will shed light on surveillance, diagnosis, prevention, and control strategies supported by data through collaborative efforts facilitated by the MenMap. By consolidating global and regional expertise from academics, the pharmaceutical industry, and governments, the network aims to boost research activities, foster innovation in the field of IBI research, and accelerate the transfer of knowledge to end users. The workshop aims to present the implementation of real-time PCR testing techniques for improving the diagnosis of invasive bacterial infections caused by *Neisseria meningitidis (Nm), Streptococcus pneumoniae (Sp), and Haemophilus influenzae (Hi).* This initiative aims to achieve the goal of "Defeating meningitis by 2030", a call for action that was recently adopted by the WHO with the vision of creating "a world free of meningitis"

The Sixth EMPHNET Regional Conference-Roundtable: *Polio Eradication Efforts and Transition Planning for Measles Elimination*



PART FIVE
SYNOPSIS OF ROUNDTABLES AND FORUMS

STRENGTHENING MULTISECTORAL COORDINATION AND CAPACITY: FROM STRATEGIES TO ACTIONS

This roundtable provides a platform for experts in Multisectoral Coordination (MSC) to share knowledge and experience regarding the institutionalization of MSC in the EMR and beyond. The session highlights the required principles for the institutionalization of MSC, as well as the current global, regional, and country efforts for implementing multisectoral strategies. Additionally, it delves into valuable lessons learned from such initiatives. The session sheds light on the EMR countries' experiences regarding multisectoral coordination plans, strategies, mechanisms, shared gaps, challenges, and actionable recommendations.

INNOVATIVE AND SUSTAINABLE SOLUTIONS TO REDUCE ZERO-DOSE, WHAT CAN THE REGION DO?

This roundtable is held to better understand the current regional zero-dose children status and to shed light on the importance of providing children and their missed communities with routine immunization, where routine immunization could be the pathway to providing other health services. The roundtable also offers an opportunity to share recommended actions for advocacy to increase vaccine coverage and equity.

ONE HEALTH APPROACH IN THE EASTERN MEDITERRANEAN REGION: INITIATIVES AND THE WAY FORWARD

This roundtable session explores the dynamic landscape of the One Health approach in the Eastern Mediterranean Region (EMR). It aims to spotlight ongoing global and regional initiatives, share successes, and generate region-specific recommendations, offering a practical roadmap for stakeholders. It encompasses a diverse range of disciplines, including human, animal, and environmental health, and emphasizes cross-sectoral collaboration and sustainability. The discussion promises to provide valuable insights into advancing the One Health approach in the EMR.

A BLUEPRINT FOR SUSTAINABILITY: BUILDING FORMALIZED RAPID RESPONSE PROGRAMS

This roundtable brings experts and practitioners to discuss actionable steps toward building sustainable systems for rapid response programs to public health events. It also aims to contribute to the global efforts to strengthen emergency preparedness and response capacities and promote their sustainability. The roundtable highlights current regional rapid response capacities, considering the new Joint External Evaluation requirements. The session focuses on the best practices, challenges, and opportunities for integrating rapid response teams into existing public health systems, and for supporting their sustainability over the long term. It also sheds light on EMR countries' experiences to draw lessons learned through building their rapid response systems.

COLLABORATIVE STRATEGIES FOR IMPLEMENTING NCDS 'BEST BUYS'

This roundtable introduces the best strategies to deliver the World Health Organization's (WHO) "Best Buys" and other effective interventions in the context of the countries in the EMR and Africa. The session provides a platform for discussing the current landscape for "Best Buys" implementation in the EMR and Africa, and for identifying the barriers to this implementation. It focuses on collaborative opportunities and timely recommendations that will assist countries in implementing interventions.

PROFESSIONALIZING PUBLIC HEALTH PROFESSIONALS EDUCATION

Due to the health workforce challenges faced by the EMR, this roundtable seeks to critically examine and advance the standards of public health education in the region. The aim is to pivot towards a competency-driven approach, ensuring public health education remains agile and effective, particularly given lessons from global events such as the COVID-19 pandemic. Through informed discussions, we aspire to establish a roadmap for a refined and professionalized public health practice in the EMR.

ANTIMICROBIAL RESISTANCE IN THE REGION: EXPERIENCES, CHALLENGES, AND PERSPECTIVES

This roundtable offers a space for experts to discuss mechanisms of collaboration and coordination to develop, fund, plan, and implement national action plans for Antimicrobial Resistance (AMR). Such plans include the establishment of an effective sectoral governance and coordination structure. The session aims to highlight the emergence and prevalence of AMR and its drivers, assess the state of AMR in the EMR, and raise awareness among professionals and the public on AMR-related topics. It also focuses on exchanging the most recent knowledge on effective ways to combat AMR in the public health, animal health, and environmental health sectors.

PANDEMIC PREPAREDNESS AND RESPONSE: ADAPTING LESSONS FOR TOMORROW

The roundtable aims to explore adaptable best practices that can strengthen the countries' preparedness and response to upcoming health crises. It will also discuss the successes and challenges that are facing nations in the region. In addition, this roundtable aims to set a course for improved pandemic resilience through the collaborative sharing of experiences, and evidence-based perspectives. The expected outcome of the event is to provide technical advice to countries to develop a nuanced roadmap that will help them in anticipating, mitigating, and effectively responding to upcoming public health challenges.

FORUM ONE: PUBLIC HEALTH IN GAZA: PRIORITIES AND SOLUTIONS

The forum offers an overview of the situation in Gaza, particularly in the public health sector. It will also explore solutions and actionable strategies for rebuilding Gaza's public health sector and building a resilient system. Furthermore, the forum aims to call for collaboration and coordination among different stakeholders from the region and beyond to support the tangible strategies presented and mobilize resources for effective rebuilding. The forum will share expertise and call for collaboration, discuss public health challenges, and develop actionable strategies for immediate and sustained public health improvements in Gaza. Among the areas of discussion will be the magnitude of destruction in Gaza's public health system, the key prioritized areas for action including communicable disease, NCDs, workforce capacity development, mental health, education programs and financing strategies, and resource mobilization.

FORUM TWO: PUBLIC HEALTH IN SUDAN: PRIORITIES AND SOLUTIONS

This forum will address the critical health crisis in Sudan by raising awareness and advocating for increased support. It will bring together stakeholders to discuss and develop strategies for immediate relief and long-term rebuilding of Sudan's infrastructure. Participants will highlight the urgent health needs caused by the ongoing conflict and foster collaboration among international and regional partners. The forum will also focus on mobilizing resources and strengthening the capacity of Sudan's health system to ensure resilience against future crises.

PANELIST SESSION I: THE ROLE OF PUBLIC HEALTH INSTITUTES (PHIS) IN PANDEMIC PREPAREDNESS AND RESPONSE

This guest speakers' session will explore the strategic roles and responsibilities of PHIs in advancing global health security by preventing, detecting, and responding to public health threats. It will highlight the significance of PHIs in enhancing the resilience of health systems, particularly during public health emergencies

PANELIST SESSION II: THE WAR ON GAZA, CHALLENGES AND OPPORTUNITIES FOR THE HEALTH SECTOR

This session aims to highlight the unprecedented health emergency occurring in Gaza due to the brutal Israeli attacks and the human-made famine. The session will provide insights into the public health challenges faced and provide an environment that fosters collaborations and advocacy for immediate and sustainable public health solutions.

PANELIST SESSION III: THE HEALTH SYSTEM IN SUDAN, FROM FRAGILITY TO RESILIENCE: THE IMPACT OF CONFLICT

The session aims to provide an overview of the humanitarian situation, challenges, and interventions conducted by different stakeholders. It will forecast the potential short-term and long-term impacts of the conflicts on healthcare delivery and public health in Sudan and enhance advocacy efforts to increase international support.

PART SIX
MEET OUR GUEST SPEAKERS

KEYNOTE SPEAKER

DR HENRY WALKE, MD, MPH
DIRECTOR FOR OFFICE OF THE DIRECTOR, CDC

Dr. Henry Walke supports the Office of Readiness and Response (ORR) and the CDC Immediate Office of the Director to prepare for, respond to, and improve performance in domestic and global public health emergencies. He plays a critical part in setting the strategic and management priorities for readiness and response programming at the CDC and is a core partner with the CDC's federal, state local, and community public health organizations. From July 2020 through September 2021, Dr. Walke served as incident manager of CDC's COVID-19 response, and as a chief CDC spokesperson. Under his leadership, the response published eight scientific briefs and over 600 articles in the "Morbidity and Mortality Weekly Report" and other scientific literature. Over 9,000 CDC employees were involved in the response during his tenure there. Dr. Walke holds undergraduate and medical degrees (with honors) from the University of North Carolina at Chapel Hill, and a Master in Public Health from Johns Hopkins School of Hygiene and Public Health.

THE ROLE OF PUBLIC HEALTH INSTITUTES IN PANDEMIC PREPAREDNESS AND RESPONSE

Dr. Bettina Borisch
MD and a Histopathologist, MPH and Fellow of the Royal College of Pathology (UK).

Dr. Amer Ikram
Fellow in the Pakistan Academy of Sciences, Past Chairperson of TEPHINET Advisory Board

Dr. Maha Al Rabbat
Professor of Public Health Faculty of Medicine, Cairo University

Dr. Ala Alwan
Professor Global Health, London School of Hygiene & Tropical Medicine PI, Disease Control Priorities-Country Translation
Clinical Professor, Global Health, University of Washington
Regional Director Emeritus, World Health Organization

THE WAR ON GAZA, CHALLENGES AND OPPORTUNITIES FOR THE HEALTH SECTOR

Dr. Kamal Al Shakhra,
Assistant Deputy Minister for Public & Family Health
Ministry of Health

Prof Omar Lattouf,
Professor of Surgery, Emory University, USA
Chair, Gaza Health Initiative & Justice for Gaza Conference
Trustee, NAAMA Foundation
President, Academy of Life Sciences
Trustee, Hebron University

Dr. Sayed Shah,
Head Health Policy and Planning, Department of Health, UNRWA

Dr. Ahmad Shatat,
Director General of Planning and International Cooperation at the Ministry of Health (based in Gaza)

Dr Fawzi Al Hammouri,
Consultant Pediatric Endocrinologist
CEO, GM - Specialty Hospital
Executive Chairman Gaza Health Initiative
Honorary President - Global Healthcare Travel Council

THE HEALTH SYSTEM IN SUDAN, FROM FRAGILITY TO RESILIENCE: THE IMPACT OF CONFLICT

H.E. Dr. Saad Kharabsheh
Epidemiologist, Former Minister of Health, Jordan

H.E. Dr/ Heitham Awadallah
Minister of Federal Ministry of Health Sudan

Prof. Salamn Rawaf
Professor of Public Health
Director, WHO Collaborating Centre
Department of Primary Care and Public Health
School of Public Health
Faculty of Medicine
Imperial College London UK

PART EIGHT
ABSTRACTS

COMMUNICABLE DISEASES

Title: Epidemiological, Clinical, and Biological Pattern of Community Meningitis in the Province of Khouribga, Morocco (2012-2022)

Theme: Communicable Diseases
Authors: Taoufik Boudiaf (abdouwissal46@gmail.com), Hassan Lachgagui (hassanlachgagui@gmail.com), Mohammed Akrim (mohammedakrim@yahoo.fr)
Country: Morocco

Background: Acute community meningitis is still a hot topic and a public health emergency in Morocco.

Objectives: The objective of this study is to describe the epidemiological, clinical, and cytochemical profile of the disease in the province of Khouribga during the period 2012-2022.

Methods: This is a retrospective cohort study with a descriptive and analytical purpose based on an analysis of the database of registered bacterial meningitis patients. Data analysis was performed using EpiInfo 7 software.

Results: The target population was 307: the most affected age group was 5-15 years and the sex ratio M/F was 1.12. The febrile meningeal syndrome was observed in 25.40% of cases. Cerebrospinal fluid (CSF) was cloudy in 49% of cases. The median WBC count was 2169 elements/mm3. The confirmation rate was 1%. The average lethality was 11.4%. The incidence of all forms of meningitis has shown a regression, reaching 1.56 per 100,000 in 2022. This decline has been observed across all classes of meningitis. The multivariate analysis allowed us to highlight two prognostic factors: coma (adjusted-OR=9.26) and hypoglycorachia (adjusted-OR=4.58).

Conclusions: Despite the decrease in the incidence of meningitis since the beginning of the COVID-19 pandemic, community-acquired meningitis remains a serious public health issue in the province of Khouribga due to its high fatality rate and very low bacteriological confirmation rate. We propose at the end of this work to undertake actions articulated around four pillars: vaccination, care (pre-hospital, hospital, and post-hospital), laboratory and epidemiological surveillance.

Keywords: Community Meningitis, Lethality, Confirmation Rate, Prognosis

COMMUNICABLE DISEASES

Title: Epidemiological Determinants for High Measles Incidence in Province, Punjab-Pakistan (2022)

Theme: Communicable Diseases
Authors: Fawad Khurshid (fawad_khurshid@yahoo.com), Khalil Ahmad (ddohtaunsa@yahoo.com)
Country: Pakistan

Background: Measles is a vaccine-preventable disease (VPD) and is one of the major public health challenges in developing countries with low vaccination coverage. Measles vaccination started in 1978 in Punjab. In 2022, measles coverage in Punjab was 83% and 64.7% in Pakistan. VPDs surveillance report for 2022 in Punjab reflected a high measles burden. The Provincial Disease Surveillance and Response Unit (PDSRU) at Lahore analyzed measles surveillance data.

Objectives: To estimate the disease burden and to formulate recommendations for prevention and control of measles in the future.

Methods: A descriptive study was conducted. Measles surveillance data for 2022 was analyzed from February 1, 2023 to March 31, 2023 at PDSRU-Lahore. Available surveillance data sets and clinical notes were reviewed. The WHO case definition was followed: any person whom clinicians suspect a measles case or any person with a fever and maculopapular rash, cough, coryza or conjunctivitis or a suspected case, which is laboratory confirmed.

Results: Results showed that out of a total of 6611 suspected cases reported, 3857 (58%) were males while 2754 (42%) were females. 1937 (29.3%) cases were laboratory confirmed. The mean age of cases was 32 months. 3402 (51.4%) cases eligible for measles vaccine were either unvaccinated or partially vaccinated. 25 deaths (Case fatality rate = 0.37%) were reported due to post-measles complications. 486 (7.3%) cases were hospitalized. The peak of reported cases was in June (n=851). The highest number of cases were reported from Rawalpindi District 18.4% (n= 1217).

Conclusions: It was concluded that some districts of Punjab have poor routine measles immunization coverage because of the tribal terrain, deserted areas, low literacy, and shortage of human resources. It is recommended to conduct social mobilization activities for vaccination, implement supplementary immunization activities like EPI Crash programs in districts with low routine Essential Immunization, and support the active involvement of Lady Health Workers in essential immunization.

Keywords: Epidemiological Determinants, Measles Surveillance, Punjab, Essential Immunization

COMMUNICABLE DISEASES

Title: Knowledge, Attitude, and Practice (KAP) of Community Towards Cholera in High-Risk Districts of Kandahar Province Afghanistan (2022)

Theme: Communicable Diseases
Authors: Mohammad Ginnah Ibrahimi (dews.southregion@gmail.com)
Country: Afghanistan

Background: Kandahar province reported nearly 16,000 cases of Acute Watery Diarrhea (AWD) in 2022, including 190 confirmed cholera cases. Community perception regarding cholera is required to be studied to formulate interventions.

Objectives: This study aims to explore the knowledge, attitude, and practice of communities toward cholera in highly affected districts of Kandahar province.

Methods: From September to December 2022, a cross-sectional survey was conducted by enrollment of 852 individuals from four districts (Dand, Daman, Panjwaye, and Boldak) of Kandahar province based on the high occurrence of diarrheal diseases. Structured questionnaires were used to collect data after obtaining individuals' consent. Data were analyzed using Epi Info V 7.2.5. The study received approval from the Institutional Review Board of the Ministry of Public Health.

Results: The mean age of the study participants was 35.5±12.03, with 532(62%) being male. Almost 595(70%) were illiterate. Additionally, 750(88%) of the participants demonstrated knowledge of cholera, which was found to be significantly associated with sex($p=0.005$) and level of literacy($p<0.001$). A total of 680 (80%) individuals were aware of the transmission route of cholera, 666(78%) perceived cholera to be a deadly and serious disease, while 616(72%) believed it could be prevented. However, only 298(35%) used boiled water, and 512(60%) practiced open defecation. 626(73%) engaged in handwashing after using the toilet, which was significantly associated with their level of literacy($p<0.001$). Seemingly, 210(82%) of literates practiced handwashing after using the toilet.

Conclusions: The study found significant associations between cholera knowledge, sex, and literacy. Although most participants were aware of cholera and its transmission route, illiterates, and females showed lower awareness. Literacy was also associated with proper handwashing. Targeted interventions, including health education, are crucial for illiterates and females to improve awareness and promote preventive measures.

Keywords: Field Epidemiology Training Program, Cholera, Kandahar, Afghanistan

COMMUNICABLE DISEASES

Title: Prevalence, and Determinants of Stigma Among a Sample of Pulmonary Tuberculosis Patients in Baghdad, Iraq (2023)

Theme: Communicable Diseases
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Country: Iraq

Background: Numerous studies highlighted the negative impact of the stigma associated with tuberculosis (TB) on the care and control of the disease. Stigma often leads to the social isolation of TB patients, both within and outside their families. Patients may experience avoidance by former friends and acquaintances and may be forced to eat and sleep separately.

Objectives: To explore the prevalence and types of TB-associated stigma and its potential factors among pulmonary TB patients in Baghdad, Iraq in 2023.

Methods: In this cross-sectional study, we collected data through face-to-face interviews with pulmonary TB patients aged 18 years and above who agreed to participate. The study setting was the National TB Institute and Al-Karkh Chest and Respiratory Diseases Consultation Clinics. A questionnaire was developed to collect sociodemographic information. The UNICEF Stigma Assessment Questionnaire was used to assess stigma levels and types.

Results: The total number of the studied sample was 206. The prevalence of stigma was 80.6% (166/206). Factors that were significantly associated with stigma were: residing in urban areas ($p<0.001$), poverty ($p<0.001$), and history of imprisonment ($p=0.003$). More than 90% of the patients with stigma had the following stigma impacts: experiences of hurt, loneliness, and loss of friends when sharing their condition. They keep a distance from others, choose cautiously who to tell, and feel guilty for their family's care. Age was the only sociodemographic factor significantly associated with the type of stigma($p<0.001$). Logistic regression analysis revealed poverty (OR=11.1,95% CI: 5.2-25.4, p-value=0.001) and history of imprisonment (OR=2.7,95%CI: 1.1–6.6, p-value=0.02) as significant independent risk factors for TB stigma.

Conclusions: The prevalence of TB-associated stigma among Iraqi patients is high. Considering stigma in TB management, raising awareness, and promoting activities to combat the stigma effect can enhance early detection and treatment, ultimately reducing the TB burden.

Keywords: TBStigma, Prevalence, TB

COMMUNICABLE DISEASES

Title: Prevalence and Factors Associated with Viral Suppression Among HIV Patients on Antiretroviral Therapy at Republican Teaching Hospital Authority in Sana'a Capital, Yemen (January 2021 to September 2022)

Theme: Communicable Diseases
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Country: Yemen

Background: Viral suppression is the principal goal of Antiretroviral Therapy (ART) and the third United Nations on Acquired Immune Deficiency Synome 95 (UNAIDS) target to end AIDS as a public health threat by 2030. Little information is available on the viral suppression rate in Yemen.

Objectives: This analysis aims to determine the prevalence rate of viral suppression and its associated factors among patients tested for HIV viral load at the Republican Teaching Hospital Authority, Sana'a, Yemen.

Methods: A retrospective descriptive analysis was conducted among 1200 patients who were on ART for at least six months and had HIV viral load tests from January 2021 to September 2022. Demographic and clinical data were attained from patients' medical records as hard copies. Patients were categorized as having achieved viral suppression if their viral load count was<1000 ribonucleic acid (RNA) copies/mL. Bivariate and multivariate logistic regressions were performed to assess the rate of viral suppression and its associated factors.

Results: The prevalence of viral suppression after at least 6 months on ART was (92%) and good adherence to ART was (87%). In multivariate analysis, patients aged ≥50 years (AOR: 5.91; 95%CI: 1.83–19.06;), who reported good ART adherence (AOR: 13.57; 95%CI: 7.69–23.94;), were initiated on ART at WHO clinical stage 1(AOR: 2.09; 95%CI: 1.15–3.80;) and patients on Dolutegravir-based regimen (AOR: 3.89; 95%CI: 2.06–7.32;) were independently associated with higher odds of viral suppression.

Conclusions: The prevalence of HIV viral load suppression was near the third UNAIDS 95 target (92%). There was a significant association between viral suppression and old age, good ART adherence, initial WHO clinical stage 1, and a Dolutegravir-based regimen. Therefore, enhanced adherence support for patients on ART and further prospective studies to identify other factors associated with viral suppression are recommended.

Keywords: HIV/AIDS, Viral Load Suppression, Antiretroviral Therapy

COMMUNICABLE DISEASES

Title: Two Decades of Endemic Dengue in Bangladesh (2000-2022): Trends, Seasonality, and Impact of Temperature and Rainfall Patterns on Rransmission Synamics

Theme: Communicable Diseases
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Country: Bangladesh

Background: The dengue virus reappeared in Bangladesh in 2000 and the virus has been detected every year since then.

Objectives: The objectives of this study were to compare the dengue cases and deaths as well as meteorological parameters between the first decade (2000-2010) and the recent decade (2011-2022) and to understand trends, seasonality, and impact of climatic conditions on transmission dynamics of Dengue.

Methods: We collected dengue cases and death data from Bangladesh's Ministry of Health and Family Welfare's website and meteorological data from the Bangladesh Meteorological Department for the period of 2000-2022. We performed Mann-Kendall and Sen's slop tests for trends and variations and fitted a time series Poisson regression model to identify the impact of meteorological parameters on the incidence of dengue cases. Finally, we forecast dengue cases using an autoregressive integrated moving average model.

Results: Over the past 22 years, a total of 244,246 dengue cases were reported including 849 deaths (Case fatality ratio [CFR] =0.34%). The annual number of dengue cases increased eight-fold during the second decade, with 2216 cases during 2000-2010 vs. 18,321 cases during 2011-2022. The annual deaths have doubled (21 vs. 46). Between the periods, the annual temperature increased by 0.49 °C, and rainfall decreased by 314 mm despite increasing unusual rainfall in the pre-and-post monsoon period. An increasing trend of dengue cases is observed with a much stiffer rise after 2018. Monthly mean temperature (Incidence risk ratio [IRR]: 1.26), first-lagged rainfall (IRR: 1.08), and second-lagged rainfall (IRR: 1.17) were significantly associated with monthly dengue incidence.

Conclusions: Over two decades, Bangladesh has experienced a significant burden of dengue cases with regular outbreaks. The increased local temperature and unusual rainfall might have contributed to this increased incidence of dengue cases in Bangladesh. Community engagement, vector control, and destruction of mosquito habitat are the key to controlling dengue.

Keywords: Dengue, Bangladesh, Climate Change, Temperature, Rainfall

COVID-19

Title: Adverse Effects of COVID-19 Vaccination: A Follow-up Study from Egypt's National Survey on Vaccination Coverage in 2022

Theme: COVID-19
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Country: Egypt

Background: SARS-CoV-2 is expected to become an endemic virus due to the persistence of pockets of susceptible people and the waning of immunity. During the pandemic, COVID-19 vaccines were given emergency use. FDA requested follow-up of vaccination adverse events (AEs) to ensure vaccines' long-term safety.

Objectives: This study aims to identify COVID-19 vaccination-related AEs to ensure the continuity of safety of COVID-19 vaccines.

Methods: Secondary data analysis was performed using the Household National COVID-19 Vaccine Coverage Survey among adults in 2022. Data analyzed included participants' demographics, COVID-19 vaccination status, vaccine types, AE types, severity, and time of occurrence using WHO definitions. Descriptive data analysis was performed, and rates were calculated and compared against participants' characteristics to identify vulnerable groups using Chi2 with <0.05 significance.

Results: Overall, 18,107 individuals participated in the survey including 14,122(78%) who had at least one dose of vaccine, of which 5,809(41%) reported AEs: their mean age was 42 ± 7.3, and 45% were males. Most AEs 93.5% were mild, 6.4 % moderate, and 0.1% were severe. Mild symptoms included injection site pain (99%), fever (81%), and myalgia (68%), whereas severe symptoms included two individuals with convulsions, and one had thrombosis. Among those reporting AEs, 84% occurred within 7 days, 63% had only one AE, 15% sought medical advice, six were hospitalized, and four were admitted to the ICU, with no deaths reported. AE was reported more among obese, females, those with comorbidities, and receivers of viral vector and mRNA vaccines (68%, 64%, 60%, 45%, and 45% respectively) compared to corresponding groups.

Conclusions: AEs reported in Egypt in 2022 were mostly mild and occurred in <7 days after vaccination, while severe AEs were rare. Study results indicate that COVID-19 vaccine benefits continue to outweigh its risks. Continue monitoring COVID-19 vaccines AEs is recommended to ensure their long-term safety.

Keywords: COVID-19 Vaccines, Adverse Effects, Cross-Sectional Survey

COVID-19

Title: COVID-19 Cluster Investigation in Female Fitness Centers in Muscat, Oman (February 2021)

Theme: COVID-19
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Country: Oman

Background: A cluster of COVID-19 occurred in female fitness centers in Muscat governorate, Oman from February 14 – 23, 2021. A team from the disease control and surveillance department investigated it on February 22, 2021. There were 19 confirmed cases of COVID-19 found in the cluster.

Objectives: To control the current and prevent future COVID-19 clusters.

Methods: A descriptive case series study was conducted for all confirmed COVID-19 cases using (RT-PCR) for the nasopharyngeal swabs. Meetings with concerned officials were held and an environmental investigation was conducted. Telephone interviews were done for all cases and contacts using the MOH investigation form. Data collection and descriptive analysis were done using Microsoft Excel and SPSS.

Results: 19 (5.7 %) COVID-19 cases were identified among 334 members and employees. 16 (4.8%) cases were among 321 members, and 3 (23%) cases were among 13 employees. The majority (73.6%) of the cluster cases were aged 26-47 years. All cases were female (100%), and 89.50% were Omani. Symptoms experienced by cases varied from mild to severe. Reported places of exposure among cases were 57.89% in aerobic classes, 47.4% in cycling classes, and 42.1% in machine areas. All COVID-19 cases recovered, and no deaths were reported.

Conclusions: The cluster indicated SARS-CoV-2 transmission due to weak adherence to prevention and control measures. COVID-19 transmission was primarily attributed to infrequent mask-wearing, intensive exercise with crowded trainers in a closed space, and inadequate ventilation. The existence of chronic diseases in 4 cases leads to hospitalization. The female fitness center should follow the protection measures to control the spread of infection and avoid future similar clusters.

Keywords: COVID-19, SARS-CoV-2, Fitness Centers, Oman, Cluster Analysis

COVID-19

Title: Epidemiological and clinical characteristics of COVID-19 mortality among healthcare workers in Saudi Arabia: A nationwide study

Theme: COVID-19
Authors: Mohammed Ahmed Kilani (Makilani@pha.gov.sa)
Country: Saudi Arabia

Background: Healthcare workers (HCWs) have been highly affected by COVID-19 due to their fundamental duties in diagnosing, caring, and treating the rapidly increasing number of infected patients. Thus, are facing the occupational risk of COVID-19 infection and mortality.

Objectives: To investigate the clinical characteristic of COVID-19 deaths and determine the factors associated with ICU admission among HCWs in Saudi Arabia.

Methods: This was a nationwide, retrospective analytical study conducted from March 5, 2020 to August 21, 2021. All deceased HCWs who were diagnosed with COVID-19 were included in this study.

Results: As of August 21, 2021, a total of 305 deaths were recorded due to COVID-19 infection among HCWs in all Saudi healthcare facilities. The case fatality rate was 0.35%. Deaths were highest among physicians (40.0%). Most of deceased HCWs acquired the infection from the community (80%). Almost 71% of deceased HCWs had at least one chronic medical condition. Most of them were admitted to ICU before they passed away (83.6%). Three significant variables predicting ICU admission were presence of one or more comorbidities, hypertension, and chronic respiratory diseases.

Conclusions: HCWs are at higher risk for exposure to COVID-19 due to their occupational risk. Our study encourages future research to provide more comprehensive information regarding COVID-19 morbidity and mortality among HCWs.

Keywords: COVID-19, healthcare workers, clinical characteristics

DISEASE SURVEILLANCE

Title: Qatar Contact Tracing Experience in Controlling the COVID-19 Pandemic (2020-2021)

Theme: COVID-19
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Country: Qatar

Background: The World Health Organization has placed significant emphasis on the pivotal role of contact tracing as a critical public health intervention in the fight against the COVID-19 pandemic, when combined with other essential interventions.
Objectives: This study aims to elucidate the experiences of Qatar in implementing contact tracing as a measure to control the COVID-19 pandemic.

Methods: Employing a comprehensive research approach, this study utilized a combination of quantitative and qualitative research methods in a multi-stage process. An initial situation analysis was conducted to comprehensively assess the activities, policies, and strategies employed in contact tracing within the country. Stakeholder interviews were carried out through focused group discussions involving various key groups. Furthermore, a SWOT analysis was performed to identify the strengths, weaknesses, opportunities, and threats associated with the contact tracing efforts.

Results: Qatar's journey through the COVID-19 pandemic involved several distinct phases. This included the establishment of specialized teams, the recruitment of a dedicated workforce, effective data management, reporting mechanisms, and the coordination of activities across different entities. These elements played a pivotal role in the success of the contact tracing initiative. The outcomes were remarkable, encompassing improved response timeliness, a reduction in the number of refusals, and the seamless management of logistical, operational, and workforce aspects. Effective contact tracing, facilitated by robust communication within teams and field visits, not only contributed to diminishing stigma but also led to enhanced reporting on contacts. Program indicators, notably the 15% positivity rate among contacts swabbed, served as a reflection of the quality of contact identification within the contact tracing process. Furthermore, a high rate of 91.6% in providing information on cases identified through the system demonstrated the system's ability to identify the chain of transmission.

Conclusions: Contact tracing emerges as a pivotal component in identifying COVID-19 cases within the community. However, there remain areas for improvement in the future, including the imperative of community engagement to mitigate stigma. Additionally, enhancements are needed in data management and analysis to further refine the effectiveness of this crucial public health intervention.

Keywords: Contact Tracing, COVID -19 Pandemic, Public Health Interventions

DISEASE SURVEILLANCE

Title: Antibiotics' Consumption Profile at a Moroccan Public Hospital: Trends Over the period of 2017-2022

Theme: Disease Surveillance
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Country: Morocco

Background: Antimicrobial resistance (AMR) is one of the main public health threats worldwide, and the importance of surveillance of antibiotic (ATB) consumption to identify potential overuse, underuse, and inappropriate use is highlighted in the WHO Global Action Plan on AMR.

Objectives: This study proposes to evaluate the profile of ATB consumption in the Provincial Hospital Center of Meknes over the period of 2017-2022.

Methods: This was a retrospective descriptive study using the Pharmacy Department's database. Analyses of 2017–2022 data about antibiotics' hospital consumption quantities were conducted using the Anatomical Therapeutic Chemical (ATC) classification and Defined Daily Dose (DDD) methodology. Total consumption (DDD per 1000 hospitalizations per day) of antibacterials for systemic use (ATC group J01), trends over time, and alignment with the WHO Access, Watch, Reserve (AWaRe) classification, were calculated.

Results: Annual consumption of ATB was variable with an average of 782,23± 223,40 DDD/1000HD. It was higher in 2019 (1.183,28 DDD/1000HD) and lower in the last three years (620.48 DDD/1000HD in 2022). Penicillin A and protected Amoxicillin were the most consumed with more than 50% of total consumption, followed by 3rd generation Cephalosporins (about 25%). antibiotics consumption was most important in the Reanimation Department (1.772,39± 330,92 DDD/1000HD). Over the years, Access agents' consumption represented between 62% and 73%, which met the WHO global monitoring target (60% of total consumption should be Access agents).

Conclusions: Due to a lack of new alternative antimicrobial agents, prudent use of existing antimicrobial agents remains crucial in the effort to prevent and control AMR. Surveillance of ATB consumption in DDD/1000DH is a standardized tool of particular interest for the antimicrobial consumption monitoring component of the national strategic plan for the prevention and control of antimicrobial resistance.

Keywords: Antibiotic, Consumption, DDD, AWaRe Classification

DISEASE SURVEILLANCE

Title: High Prevalence of Multi-Drug Resistant Bacterial Pathogens Isolated from Ten Governmental Hospitals: Results from Healthcare-Associated Infections Surveillance in Egypt (2022)

Theme: Disease Surveillance
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Country: Egypt

Background: Multi-drug-resistant bacteria are a growing threat to public health. It is crucial to have up-to-date information on local pathogens and patterns of drug resistance to provide quality healthcare. Egypt is monitoring antimicrobial resistance (AMR) through hospital-acquired infections (HAI) surveillance conducted at 39 governmental hospitals all over the country.

Objectives: To assess the pattern of AMR associated with HAIs at ten governmental hospitals and their susceptibility to common antibiotics.

Methods: Demographic and clinical characteristics of patients with HAIs between January and June 2022 were obtained from the surveillance database. Results of culture of patients' blood, urine, wound, and bronchial lavage were obtained from hospital laboratories. Isolates received at the Central Laboratory were tested for AMR by the Disk Diffusion method according to CLSI 2022 guidelines. M was defined as bacteria non-susceptible to at least one antibiotic in ≥ 3 ug classes. Descriptive data analysis for patients' epidemiologic data and AMR testing was performed.

Results: Overall, 194 patients were identified: their mean age was 43.5±27 years, and 49.5% were males. Of these, bloodstream infections (BSI) represented 48.2%, urinary tract infections (UTI) 24.3%, surgical site infections (SSI) 23.4%, and lower respiratory tract infections (LRTI) 4.0%. Of 187 isolates tested for AMR, Klebsiella spp. represented 89(47.6%) followed by E.coli 22(11.8%), Acinetobacter 19(10.2%), and Staph aureus 16(8.6%). Klebsiella spp. Caused 55.8% of SSIs and 40.5% of BSIs. It was found that 184 isolates (98.4%) were M, with Klebsiella spp., E.coli, and Acinetobacter being 100% M, and M Staph aureus being 87.5% of the isolates with 62.5% being MRSA.

Conclusions: There is an alarming level of multi-drug resistance in ten Egyptian governmental hospitals. Studies are needed to determine the causes of increased AMR among HAIs, and an AMR stewardship program is required to reduce M rates in Egypt.

Keywords: Healthcare-Associated Infections, Surveillance, Multi-drug resistant bacteria.

DISEASE SURVEILLANCE

Title: Impact of COVID-19 Pandemic on National Influenza Surveillance Bangladesh (NISB) (2015-2022)

Theme: Disease Surveillance
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Country: Bangladesh

Background: Bangladesh has been leveraging influenza surveillance through infrastructure and multiplex PCR tests for SARS-CoV-2 surveillance since March 2020. This resource redirection might affect the performance of NISB.

Objectives: This evaluation assesses staff's perception of performing surveillance tasks for NISB, compares NISB performance in different phases of the COVID-19 pandemic, and identifies challenges.

Methods: A mixed-method approach was applied. Five sentinel sites were selected based on high and low influenza positivity rates. A semi-structured questionnaire was administered to 31 surveillance staff using a Likert scale (1-4) to measure the difficulty level of 11 indicators: identifying cases, obtaining consent, completing record forms, sample collection, packaging, transportation, IPC adherence, and duration of enrolling a patient. The evaluation period was divided into pre-COVID (2015-25 March 2020), acute-COVID (26 March 2020-August 2020), and current-COVID (September 2020-2022): These were defined by the number of samples collected, which were likely affected by COVID-19 mitigation activities. A mean simplicity score was calculated by taking the average scores of the indicators. Focus group discussion with content analysis was done to further explore challenges and solutions.

Results: The mean simplicity score was 2.9 (out of three) in the pre-COVID phase: one during the acute COVID phase and three in the current COVID phase. In the acute COVID phase, staff perceived the majority of indicators as difficult (53-92%). Challenges included variations in the clinical presentation of influenza, concerns about patient stigmatization, apprehension among healthcare workers regarding personal health risks, and the need for double specimen collection from the same patient for a different platform. These challenges were addressed by comprehensive staff training and implementation of electronic systems for data collection and management.

Conclusions: COVID-19 disrupted influenza surveillance temporarily. However, notable improvements were observed in the current phase after addressing the challenges. This capacity may contribute to effective pandemic response in the future and help create a pan-disease surveillance system.

Keywords: Influenza, Surveillance, COVID-19, Pandemic, Bangladesh

DISEASE SURVEILLANCE

Title: Imported Malaria in Jordan Among Jordanian United Nations Peacekeeping Forces and Non-Jordanian from 2012-2021: Secondary Data Analysis

Theme: Disease Surveillance
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Country: Jordan

Background: Malaria continues to be a significant global public health issue. Imported malaria poses a major health concern and threatens the health security of Jordan. Because of Jordan's successful implementation of a strong malaria surveillance program and control measures under the Ministry of Health, the country has remained malaria-free since 1972.

Objectives: This study aimed to assess various epidemiological aspects of imported malaria into Jordan over ten years from 2012 to 2021.

Methods: Data on imported malaria cases were collected from the Parasitic and Zoonotic Diseases Department at the Jordanian Ministry of Health. A total of 571 imported malaria cases were diagnosed microscopically during the specified ten-year period (2012-2021). Variables such as age, gender, country of acquisition, and etiologic agents were analyzed to characterize the malaria cases.

Results: Out of the 571 imported malaria cases, 84% were males. The highest number of cases was reported in 2012 with 115 cases. The majority of cases (approximately three-quarters) occurred among individuals aged 21 to 40 years. Nearly half (49.4%) of the imported cases were Jordanian nationals. Cases were reported from over 30 different nationalities. The most common type of malaria infection was Plasmodium falciparum, accounting for approximately 60.1% of cases, Plasmodium vivax accounted for 34% of cases, plasmodium malarie accounted for 4.6% of cases, and mix accounted for 1.4% of cases.

Conclusions: Despite Jordan's longstanding recognition as a malaria-free country since 1972, imported malaria remains a significant problem. It is crucial to provide advice on personal protection measures and administer prophylactic treatment against malaria to individuals traveling to endemic areas. Additionally, foreign workers from malaria-endemic countries, particularly those working in malaria-receptive areas of Jordan, should be tested and treated for malaria to prevent the re-introduction of the disease. Continued vigilance and proactive measures are essential to maintaining Jordan's malaria-free status and ensuring the protection of public health.

Keywords: Malaria, Imported Malaria, Jordan, Peacekeeping Forces

DISEASE SURVEILLANCE

Title: Influenza Burden in Tunisia During 2022-2023 Season Using the WHO Seasonal Influenza Burden of Disease Estimator

Theme: Disease Surveillance
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Country: Tunisia

Background: Determining the burden of seasonal influenza is crucial for understanding and communicating its impact on public health and healthcare capacity.

Objectives: We aimed to estimate the burden of seasonal influenza in Tunisia for the 2022-2023 season to guide public health decision-makers.

Methods: We collected data from 9 out of 11 SARI sentinel surveillance sites (regional and university hospitals) in the three regions of Tunisia (north, center, and south). Respiratory specimens were tested weekly at the National Influenza Center. We estimated influenza burden (incidence and severity) for the 2022-2023 season using the WHO seasonal influenza disease burden estimator.

Results: 1,088 SARI cases were reported, of which 138 (13%) were positive for Influenza viruses. Influenza A/H1N1pdm09 subtype was detected in 75 (54%) SARI cases. The estimated number of hospitalized cases, symptomatic cases, and deaths per 100k inhabitants were respectively 3; 95%CI (0.71 - 46), 749; 95%CI (85 - 1072) and 0.18; 95%CI (0.01 – 0.73). The estimated number of critical cases per 100k inhabitants was 0.93; 95%CI (0.05 – 1.2), and the number of mild/moderate cases per 100k inhabitants was 746.4; 95% (84.3 – 1026.39). The case fatality ratio was estimated at 0.02%. The age group with the highest estimated number of deaths, critical, and hospitalized cases per 100k inhabitants was elderly aged ≥ 65 with respectively 1.24, 5.22, and 13.98. The age group with the highest estimated number of mild/moderate cases per 100k inhabitants was 15-49 with 1236.2. The estimated proportion of influenza-related deaths by syndrome was non-respiratory syndrome and non-circulatory syndrome (27%) followed by respiratory syndrome (34%) and circulatory syndrome (39%).

Conclusions: Seasonal Influenza was related to a considerable burden among people aged 15-49 and ≥65, with a high incidence rate of severe forms. We recommend improving vaccination coverage among this population to reduce influenza incidence and severity.

Keywords: Burden of Disease, Influenza, Tunisia, Surveillance

DISEASE SURVEILLANCE

Title: Landscape analysis of cross-border public health surveillance in the Middle East and North Africa

Theme: Disease Surveillance
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Country: Jordan

Background: Strengthening cross-border public health surveillance is instrumental in increasing pandemic preparedness, resilience, and global health security. Public health surveillance systems for mobile populations and cross-border information sharing in the Middle East and North Africa (MENA) region have not been landscaped or assessed systematically.
Objectives: We sought to examine how cross-border public health information is collected, analyzed, and shared within MENA focusing on differences between countries and mobile population types.

Methods: We conducted a systematic literature review using the PRISMA framework to search scientific databases for key search terms, with inclusion criteria covering at least one MENA country, published after 2012, and related to categories of inquiry linked to cross-border disease surveillance. Data were extracted into a matrix for each publication on pre-determined data elements, including country, disease, key theme, population type, key messages, and recommendations. The results were synthesized and analyzed using a matrix.

Results: Our systematic search identified 9049 publications. After screening, reviewing, and additional targeted searches, 100 sources were included in the review. These sources described 24 MENA countries representing all income levels, 17 different diseases, and both emergency and routine surveillance. Data were classified according to six pre-defined themes: Points of Entry & International Health Regulations (n=24), Cross-border Surveillance Systems (n=18), Mobile Population Definitions & Data (n=24), Multi-sectoral and One Health (n=18), Information Sharing & Coordination (n=12), and Policy & Legal (n=5).

Conclusions: Cross-border surveillance approaches vary across MENA. Considerations for strengthening systems to incorporate mobile populations include innovative data collection and analysis methodologies, addressing mass gatherings and traveler surveillance, strengthening data-sharing mechanisms to detect emerging threats, employing a multi-sectoral One Health approach to border health, and expanding reach to refugees including climate refugees for surveillance efforts. These findings are guiding key-informant interviews to provide case studies to further conclusions and recommendations.

Keywords: Public Health Surveillance; Border Disease; One Health; Middle East; Refugees; Africa, Northern

DISEASE SURVEILLANCE

Title: Predictors of Visual Inspection with Acetic Acid Positivity in Electronic Data Tracking with Population-Based Cervical and Breast Cancer Screening Program (EPBCBSP) in Bangladesh (2018-2022)

Theme: Disease Surveillance
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Country: Bangladesh

Background: Cervical cancer (CC) is the second most prevalent cancer among women in Bangladesh, with 8,268 newly diagnosed cases in 2020, leading to 4,971 deaths. The Electronic Data Tracking with Population-Based Cervical and Breast Cancer Screening Program (EPBCBSP) was conducted in 610 health centers across Bangladesh for active screening of cervical cancer using the Visual Inspection with Acetic Acid (VIA) test at the community level.

Objectives: We analyzed EPBCBSP data to describe the predictors of VIA-positive cases from 2018 to 2022.

Methods: We accessed EPBCBSP data in the District Health Information Software 2 (DHIS2) online platform and extracted data from 10 sites selected conveniently (one colposcopy clinic and one VIA clinic) from Dhaka, Khulna, Rajshahi, Chattogram, and Sylhet divisions. Descriptive analysis and logistic regression were performed, considering VIA positivity status as the dependent variable and sociodemographic and reproductive variables as predictors.

Results: Out of 51403 participants, 3351 (6.5%) were VIA positive at designated sites. Rajshahi division had the highest EPBCBSP participation rate (30.1%) followed by Khulna (18.2%). The median age of the participants was 38 years (range 16-88), with the majority being between (54.7%) of 30-39 years. Homemakers were 95.7% and 42.5% completed secondary education. VIA positivity was found significantly associated with secondary education (Adjusted Odds Ratio [AOR] 1.23, 95% CI 1.06-1.43) and lower middle class (AOR 1.19, 95% CI 1.04-1.35). The odds of VIA positivity were significantly lower among women aged 30-39 years (AOR 0.63, 95% CI 0.49-0.80) and 40-49 years (AOR 0.51, 95% CI 0.40-0.66). Marriage between 26-30 years (AOR 0.34, 95% CI 0.07-1.67) and first childbirth between 20-24 years (AOR 0.85, 95% CI 0.68-1.08) were associated with lower odds of VIA positivity.

Conclusions: Women with low socioeconomic status and secondary education levels were more affected. Implementing targeted educational interventions, addressing socioeconomic disparities, and discouraging early marriage and childbirth practices may reduce the risk of cervical cancer in Bangladesh.

Keywords: Cervical Cancer, Screening, VIA, Predictors, Electronic Data Tracking in Bangladesh,

PUBLIC HEALTH SURVEILLANCE

Title: High Incidence of Human Brucellosis in West Bank, Palestine (2010-2020)

Theme: Public Health Surveillance
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Country: Palestine

Background: Brucellosis, a zoonotic disease affecting humans and animals, poses a substantial public health challenge in Palestine, with significant economic consequences and a considerable financial burden that should not be overlooked.

Objectives: We aimed to describe human brucellosis cases in the West Bank over a decade (2010-2020) to better guide prevention and control efforts.

Methods: A comprehensive passive surveillance system for brucellosis is in place in Palestine, using the WHO case definition for confirmed human cases. We included all reported cases of human brucellosis in the West Bank during 2010-2020 and calculated incidence using the mid-year census population estimates as a denominator. We used linear regression to describe trends.

Results: During 2010-2020, 5744 cases of human brucellosis were reported in the West Bank with an increasing trend until 2016 ($p<0.005$). The mean annual incidence was 21 cases/100,000 population. Incidence was lowest in 2012 at 5.8 cases/100,000, reached its peak in 2016 at 42/100,000, and remained high in the following 4 years. Males accounted for 58% of cases. The median age was 22 years (interquartile range 13-37 years), and the highest incidence was observed in the 10-18 age group (49/100,000; 29% of cases) and Hebron Governorate (62/100,000). 40% of cases were diagnosed between April and June, indicating a seasonal pattern. Consumption of homemade unpasteurized milk and milk products (sour cream and white cheese) was reported in 75% of cases and 43% had direct contact with animals (sheep, goats, and cattle); all animals were unvaccinated.

Conclusions: The high incidence of human brucellosis in the West Bank, particularly in certain geographic areas and population groups, underscores the need for targeted prevention and control strategies. We recommend a multi-sectoral approach to strengthen surveillance, enhance vaccination programs for animals, reduce consumption of unpasteurized milk and milk products, and increase public awareness of the disease and its risk factors.

Keywords: Brucellosis, Zoonotic Disease, Palestine, Incidence

PUBLIC HEALTH SURVEILLANCE

Title: Assessment of Surveillance Affecting the Notification of Methicillin-Resistant Staphylococcus Arius in the State of Qatar from January to April 2023

Theme: Public Health Surveillance
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Country: Tunisia

Background: In the State of Qatar, notification of notifiable diseases is required by law to be reported through the National Surveillance and Vaccination Electronic System (SAVES). The most commonly notifiable diseases are foodborne and vector-borne, respiratory disease, and Antimicrobial-Resistant bacteria, mainly Methicillin-resistant Staphylococcus aureus (MRSA). MRSA was usually reported from healthcare settings but now most cases are from communities.

Objectives: To assess surveillance and notification of communicable diseases highlighting MRSA as an example and to identify factors influencing underreporting.

Methods: Retrospective data analysis was conducted from January to April 2023 covering national secondary data of cases reported to Infection Prevention and Control (IPC) from SAVES. For the data quality audit, the main private healthcare facilities and main governmental laboratories were visited. Key healthcare workers were interviewed using an adapted questionnaire. Observations and interpretations were compiled and sorted for SWOT analysis.

Results: Based on IPC reports, we observed an increase in MRSA cases from May 28 to June 4 2023; 45 confirmed and 58 suspected MRSA cases were reported. With the observed increase in MRSA cases, we decided to check the data from January to April 2023. The number of cumulative MRSA-reported cases was nine hundred and thirty-five. Most of the reported MRSA cases were under 10 years (n=214) and between 30 to 39 years (n=222). Of the cumulative reported cases, 93 % were community-acquired. The major factors that influence the proper notification are shortage of staff, high turnover, and workload. One of the main reasons was communication and feedback.

Conclusions: An increase in MRSA reported cases was observed and most cases are acquired in the community among healthy young people.
Various factors affect the surveillance and notification of communicable diseases. The findings emphasize the need to foster a well-structured surveillance system, early notification, strong communication, and regular feedback.

Keywords: Surveillance, Notification, MRSA, Infection Prevention and Control, Community Acquired

PUBLIC HEALTH SURVEILLANCE

Title: Combating Malaria in Bangladesh: Evaluation of Surveillance by National Malaria Elimination Program

Theme: Public Health Surveillance
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Country: Bangladesh

Background: Despite progressive gains, malaria remains an important public health concern in Bangladesh. The strengthening of the malaria surveillance system is essential in the progress toward malaria elimination.

Objectives: This study assessed the key attributes of the national malaria surveillance system.

Methods: Cox's-Bazar, an endemic district for malaria in Bangladesh was selected by convenience. Available stakeholders (n=23): 8 Upazilla-level officials, 2 Statisticians, and 13 Field staff, were interviewed face-to-face with a semi-structured questionnaire. Retrospective records from 2012 to 2021 from the National Malaria Elimination Program (NMEP) were reviewed, and secondary data analysis was done. Following the "Surveillance Evaluation Guideline of MMWR, US-CDC 2001," five qualitative attributes (Simplicity, Acceptability, Usefulness, Representativeness, Stability) and two quantitative attributes (Data Quality and Timeliness) were evaluated. Ethical concerns were considered.

Results: All 354 diagnosed cases were notified (via SMS) within 24 hours and treatment started on the day of diagnosis. On day 1, all case investigations were done. All aggregated data from the field level to the national level were sent monthly. Out of 23, 87.0% of respondents were trained, 55.0% described the system as simple, and 70.4% stated that case definitions and the data collection process were acceptable. 86.4% of respondents reported that the surveillance system was useful and 100% of respondents described the surveillance system as stable. Five out of eight (62.5%) officials emphasized public-private collaboration and HR training. The National Malaria Surveillance manual was not available to any upazila-level officials (0/5). Data was found fully complete in every variable with 100% accuracy, and trends of total confirmed cases and deaths decreased progressively from 2012-2021 except in 2014 (outbreak).

Conclusions: The timeliness of reporting was excellent. The National Malaria Surveillance manual should be available at the upazila level in endemic zones. Strengthening human resource capacity through regular training to enhance the system's effectiveness and establishing a real-time case-based data reporting system are needed.

Keywords: Malaria, Surveillance, Cox's-Bazar District

PUBLIC HEALTH SURVEILLANCE

Title: Evaluation of Communicable Diseases Sentinel-Based Surveillance System inGreater Wad Madani Locality- of Gezira State (October 2022)

Theme: Public Health Surveillance
Authors: Sausan Elbai (sausnaalbai@gmail.com), Narmean Elhussein (narminelhussein@gmail.com), Amira Bakheet (amerabakheet@yahoo.com), Amna Khairy (akhairy@emphnet.net)
Country: Sudan

Background: The sentinel site surveillance system is the main surveillance system for 26 priority communicable diseases in Gezira state and covers 18% (178/995) of health facilities at the state level. It provides an alternative to population-based surveillance.

Objectives: To evaluate the communicable disease sentinel-based surveillance system in the Greater Wed-Medani locality, Gezira state.

Methods: Based on WHO and CDC guidelines, we evaluated quantitative and qualitative attributes of the surveillance systems of four sentinel sites in Wad Medani locality, using mixed quantitative and qualitative methods, in August 2022. We conducted twelve key informants, in-depth interviews, and desk reviews for surveillance reports. We used Microsoft Excel 2019 for the analysis of quantitative variables, and thematic analysis for qualitative variables.

Results: All respondents agreed that the system was useful, simple, flexible, stable, and acceptable. Personal phones were used for reporting and no budget was allocated for surveillance at all levels. Representativeness was low: it only covered 51% (48/94) of health facilities at locality levels. Reports' completeness exceeded 85% (1469/1728), but the World Health Organization's target for timeliness was achieved only by 75% (1296/1728). By contrast to states and locality officers, there were clear knowledge and training gaps among focal persons at the level of sentinel sites. 75% (6/8) of them had never received any training on surveillance before, and guidelines were available at only 50% (2/4) of the sites. Also, there was no regular data analysis in terms of time, place, and person.

Conclusions: Overall, the system had good data quality, with limited timeliness and poor representativeness. Regular training and available channels for reporting for the sentinel site's focal persons are crucial to improving the timeliness of reporting. Sentinel sites should be expanded for better representation of health facilities. Training of locality officers on data analysis for timely use of data for action is recommended.

Keywords: Evaluation, Sentinel Sites, Surveillance Systems, Medani, Gezira State

PUBLIC HEALTH SURVEILLANCE

Title: Progress towards measles elimination: Review of measles surveillance performance indicators in Lebanon, 2013-2022

Theme: Public Health Surveillance
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Country: Lebanon

Background: Lebanon adopted the World Health Organization (WHO) regional strategic plan (2012-2020) to achieve measles elimination. However, the country still experiences periodic outbreaks every 4-5 years. Effective surveillance is a key component towards reaching the elimination goal.

Objectives: We aimed to analyze the WHO measles surveillance performance indicators to identify areas for improvement.

Methods: We reviewed cases suspected of measles and/or rubella notified to the national epidemiological surveillance program between January 2013 and December 2022. A suspected case was defined as any patient presenting febrile maculopapular rash or considered by a physician as clinically compatible. We assessed the reporting rate of non-measles/rubella rash cases in the population (WHO target: >=2 discarded cases/100,000 population). We also assessed the proportion of rash cases timely investigated within 48 hours of notification, the proportion of cases adequately investigated including demographic and vaccination information and the proportion of cases tested for measles and/or rubella (target: >=80% of notified cases). We calculated mean proportions and standard deviations to summarize surveillance performance indicators per year and province.

Results: We reviewed 5,626 suspected cases in 2013-2022. Of these, 2312 (41%) were laboratory-confirmed for measles. Rash cases were mostly reported from hospitals (66%). Outbreaks occurred in 2013 (n=1,760) and 2018-2019 (n=1,984). Except for outbreak years, the non-measles/rubella reporting rate ranged from 0.1/100000 to 1.8/100000 population was below the target in three provinces. The proportion of cases timely and adequately investigated were 83% (±16%) and 47% (±19%) respectively. The proportion of tested cases was 59% (±16%) during the study period.

Conclusions: Findings indicated a high proportion of hospitalized cases, sub-optimal sensitivity, and incomplete investigations. We recommend enhancing the reporting of suspected cases from outpatient settings and training staff on adequate investigation with special attention on collecting biological specimens for laboratory testing. We recommend regular monitoring of measles surveillance indicators at national and provincial levels.

Keywords: Measles, Surveillance, Indicators, Elimination, Lebanon

PUBLIC HEALTH SURVEILLANCE

Title: Timeliness and Data Quality of Malaria Surveillance Data in Cox's Bazar, Bangladesh (2022)

Theme: Public Health Surveillance
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Country: Bangladesh

Background: Malaria is endemic in 13 districts of Bangladesh including Cox's Bazar. The National Malaria Elimination Program is implemented in 3 stages, namely; Control, Elimination, and Prevention of Re-emergence phases with the target to eliminate within 2030. Cox's Bazar district is in the elimination phase of this strategy, having the highest number of cases among the districts of the same phase.

Objectives: To measure the timeliness and data quality of malaria surveillance in Cox's Bazar from 2022 according to MMWR guidelines.

Methods: Malaria cases detected actively or passively were line-listed. Data was captured using a case investigation form (CIF). In 2022, 837 CIFs were completed. Among those, 50 CIFs were randomly selected and were analyzed for timeliness and data quality. Timeliness was defined as the "1-3-7 approach" where case investigation, foci investigation, and entomological measurement are completed within the 1st, 3rd, and 7th days respectively. A descriptive analysis of surveillance data was done, and stakeholders were interviewed to assess data quality.

Results: Among 837 malaria cases reported in 2022, 89%(n=745) were male. The median age was 23 years with the range 5 months to 81 years. Case detection rate was 0.27%: (Rapid Diagnostic Tests=0.36% and Blood Slide Examination=0.09%). In all variables, 0.53%(n=115) of data were missing, address variable was the most missing (2.19%,n=92) and wrong (4.30%,n=180) data because of the difference in address format of Forcibly Displaced Myanmar Nationals. Patients diagnosed by active case detection were 71.9%(n=602) & 70.7%(n=591) and cases were detected within 3 days of developing symptoms (Mean=3.11, Mode=2 days). In 12%(n=6) patients, case investigation was delayed by outreach health workers.

Conclusions: There is inadequate socio-demographic data and a delay in timeliness. Electronic case investigation forms can improve quality. Proper training and transport support for field investigators will improve timeliness. Active case detection and awareness-raising programs will make the elimination target successful.

Keywords: Bangladesh, Malaria, Surveillance, Timeliness, Data Quality, FDMN

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: A Qualitative Study to Find Reasons for Defaulting from Childhood Immunization in District Swat Pakistan (2022)

Theme: Immunization and Vaccine-Preventable Diseases
Authors: Kifayat Ullah (kifayat@gmail.com)
Country: Pakistan

Background: The health status of people especially children is significantly dependent on vaccination against vaccine-preventable diseases (VPDs), through which early childhood diseases can be prevented. The World Health Organization has declared vaccination as the most effective strategy against childhood diseases. Despite this fact, a huge number of children become defaulters and more than a million children die from VPDs annually.

Objectives: This study aimed to find out the reasons for defaulting from the Expanded Program on Immunization (EPI) in District Swat of Pakistan.

Methods: A qualitative phenomenological study was conducted from March to September 2022 in District Swat of Khyber Pakhtunkhwa province of Pakistan. The study population included caregivers who have children under two years of age and have not completed the vaccination of their children. A total of 36 in-depth interviews were carried out with caregivers of the defaulters' children to explore the reasons for not completing the EPI vaccination of their children. Caregivers for interviews were selected through a random sampling technique from the registers of vaccination centers. Further interviews were stopped upon the saturation of the data. A thematic analysis approach was adopted to analyze qualitative data.

Results: The average age of the defaulter children was 13.5 months (Ranging from 3 to 23 months) while the average age of the participants was 42.7 years (Ranging from 21 to 75 years). Common reasons and themes identified were the illness of the child at the time of vaccination, Adverse Events Following Immunization (AEFI), myths and misconceptions regarding vaccination, and poor immunization services arrangements. Parents' priorities, cultural restrictions on the mother, and loss of vaccination cards were also found to affect the completion of childhood vaccination.

Conclusions: The main reasons for defaulting from childhood immunization were the child's ill health, perceived AEFIs, myths about vaccination, inappropriate injection technique, and attitude of the vaccinator. Efforts to reduce the number of defaulters from the vaccination program need to focus on parents' counseling and defaulter tracking. Polite behavior and safe injection techniques may also decrease the defaulter rate.

Keywords: Defaulter, EPI, Vaccination, Immunization, VPDs

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: Epidemiological Characterization of Rubella During the Pre-Rubella Vaccine Introduction Phase in Sudan (2010-2022)

Theme: Immunization and Vaccine-Preventable Diseases
Authors: Mrs. Amna Khairy (amnakh22@gmail.com)
Country: Sudan

Background: More than 100,000 cases of congenital rubella syndrome are reported annually among off springs, whom their mothers contracted rubella infection during their pregnancy. Sudan was approved by the Global Alliance for Vaccines and Immunization (GAVI) to be eligible for Rubella vaccine introduction(MR), however, this was not operationalized yet.

Objectives: To describe the epidemiology of rubella in Sudan in terms of reported morbidity and mortality, to inform rubella vaccination roll-out.

Methods: In this cross-sectional study, we used the national surveillance system data during the period 2010-2022. We extracted, cleaned, and analyzed data on reported Rubella cases using the Statistical Package of Social Sciences SPSS version 26 . We conducted a descriptive and inferential analysis in the form of frequencies, incidence rates, and binary logistic regression.

Results: Total rubella cases were 6,359, representing 11% of the suspected cases (n = 57,647). More cases were reported among males (54%, n = 3445), but this gender difference was statistically insignificant (OR = 1.0; 95% CI: 1.0–1.0). Almost half of the cases (47%, n = 3,006) were between 5 and 10 years old. They were almost nine times more likely to get the infection compared to younger groups (OR = 8.7, 95% CI = 8.6–8.8). Significant geographic variance in the risk of infection was found. Khartoum state, Blue Nile state, and northern state reported the highest reported incidence. The case fatality rate was low (0.05%, n=6).

Conclusions: Rubella infection has caused significant morbidity among young children in Sudan over the past decade.MR vaccine introduction needs to be operationalized. School-age children and adolescents need to be reached with the routine immunization services for Rubella. Continuous congenital rubella syndrome surveillance for monitoring the impact of rubella before and after the vaccine introduction is recommended.

Keywords: Sudan, Rubella, Vaccination, Epidemiology

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: Immunization Coverage Among Under-Two Years Children in Kabul City Slums (2022)

Theme: Immunization and Vaccine-Preventable Diseases
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Country: Afghanistan

Background: Although vaccination coverage has increased globally, low immunization coverage is still a public health challenge and vaccine-preventable diseases (VPDs) account for one-fourth of all deaths among children. In Afghanistan, efforts on immunization have been commenced since 1974 with improvements in recent decades. Yet, immunization coverage is not consistent and differs on inter-provincial and intra-provincial bases.

Objectives: To identify immunization coverage among under two years children in Kabul city slums.

Methods: This cross-sectional survey was conducted in 79 slums of 12 districts in Kabul city. Data was collected from November to December 2022 on socio-demographic characteristics of caregivers, immunization history, reasons for no vaccination, and knowledge of caregivers. The sample size for this study was estimated to be 606 caregivers for a household with an under-two-year child. Data were cleaned, entered, and analyzed in Excel and Epi Info V 7.2.1.

Results: We surveyed a total of 606 caregivers among whom 452 (74.59%) were males and 154 (25.41%) were females. In total, 444 (73.27%) of children aged 0 – 11 months and 391 (64.52%) children aged 12 – 23 months were vaccinated. Vaccination card possession was reported by 405 (66.83%) of caregivers. Fully Immunized coverage was 51.23% The rate of no/zero immunization among children aged 0-23 months was 26.73%, the Penta3 dropout rate was 30.4%, and the measles1 dropout rate was reported 51.1%.

Conclusions: The coverage of all antigens was very low compared to the NEPI expected rate Dopouts of Penta-3 and Measles-1 were higher than the threshold. Caregivers' literacy was very low, and many families did not know about immunization. Immunization coverage needs to be improved through communication, demand generation, and provision of mobile vaccination teams in slums.

Keywords: Immunization, Coverage, Kabul, Under-Two Years, Slums

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: Perceived App Usability and Adherence to Children's Vaccination Appointments in Zaatari Camp, Jordan: A Secondary Data Analysis of a Clinical Trial

Theme: Immunization and Vaccine-Preventable Diseases
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Country: Italy

Background: Smartphone applications (apps) for vaccination reminders are becoming increasingly popular. However, the association between perceived app usability and adherence to children's vaccination schedules remains understudied, especially in vulnerable settings like refugee camps.

Objectives: To assess the relationship between perceived app usability and adherence to children's vaccination appointments at the Zaatari refugee camp in Jordan.

Methods: Data from a non-randomized controlled trial conducted between March and December 2019 at three vaccination clinics in the Zaatari Refugee Camp, Jordan, were analyzed. The intervention group included parents using the Chilen Immunization App (CIMA). Multivariate backward regression analysis identified significant determinants for delayed vaccination appointments. Perceived app usability was measured via perceived ease of using smartphone apps and perceived user control of smartphone apps.

Results: The study included 471 babies in the intervention group. A total of 116 (24.6%) babies returned on time (0-6 days) for vaccination appointments, while 249 (52.9%) returned late (≥7 days). Parents with lower perceived user control of smartphone apps were significantly more likely to have their children return late for vaccination appointments (odds ratio [OR] 5.07, 95% CI 2.80-9.18, $p<0.001$) after adjusting for the vaccination decision-maker in the household and parental age and education level.

Conclusions: Enhancing the usability of the CIMA app, particularly in terms of user control, may improve adherence to vaccination schedules in vulnerable populations. Future research should focus on refining app designs to better support immunization efforts in challenging settings.

Keywords: Perceived App Usability, m-Health, Vaccination Adherence, Zaatari Refugee Camp, CIMA app

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: Single dose of Oral Cholera Vaccine Efficacy in Response to Cholera Outbreak in Nishter town, Lahore: A Test Negative Case-Control Study

Theme: Immunization and Vaccine-Preventable Diseases
Authors: Shamaila Usman (alamshamaila15@gmail.com), Wasif Malik (wasifus@yahoo.com), Ahmed Shafique (dhscdcpunjab@gmail.com)
Country: Pakistan

Background: The oral Cholera vaccine (OCV) represents a new effective tool to fight cholera. Lahore reported the highest number of Cholera cases from May to August 2022 in the Province Punjab. This makes it the epicenter of Cholera. WHO Global Task Force on Cholera Control supported Mass Vaccination in District Lahore to enhance outbreak response for Prevention and Control measures. In this regard, the District Health office vaccinated 21867 people in 7155 households of Nishter Town, a high-risk Union Council of Lahore in August 2022 with one dose of OCV. The FELTP Team conducted a vaccine efficacy study in conjunction with this large public health intervention:

Objectives: To estimate the effectiveness of one dose of OCV for short-term protection of Cholera.

Methods: Test Negative Case-control Study was conducted with all suspected cholera cases included from line listing of the Disease Surveillance System and case definitions in the Cholera Treatment Centre (CTC) after the vaccination campaign in Nishter Town. Case definition was any person older than 12 months admitted in CTC between 1st Aug 2022 and 31st March 2023 with acute watery diarrhea (at least three watery stools in 24 hours) resident of Nishter Town. Suspected Cases were divided into two groups based on cholera culture results and then compared with vaccination status. Vaccine efficacy (VE) is calculated using a mathematical formula: (1 – OD) × 100.

Results: Among the 485 suspected cholera cases included in the study, 85 (18%) had positive culture reports for Vibrio cholera O1 (75 unvaccinated and 10 vaccinated). All confirmed cases had V. cholera O1 serotypes. From the 400 non-cholera diarrhea cases, 220 were vaccinated, and 180 were unvaccinated. Using unadjusted logistic regression models, VE was 89% (95% CI: 62.4–97.0)

C**onclusions:** One dose of OCV was effective in preventing cholera in this study. These results support the use of a single-dose strategy in outbreaks in similar epidemiological settings:

Keywords: Vaccine Efficacy, Oral Cholera Vaccine (OCV), Cholera, Prevention, Vaccine

IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES

Title: Cholera Outbreak Investigation in Anwar Gandaro Village, Thatta District,-Pakistan (June 2023): An Unmatched Case-Control Study

Theme: Immunization and Vaccine-Preventable Diseases
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Country: Pakistan

Background: On June 4, 2023, social media reported an unexpected increase in hospitalized diarrhea cases (n=15) with two deaths. All belonged to a rural area: Anwar-Gandaro village of district Thatta in Pakistan. An outbreak investigation team was deployed.

Objectives: To identify risk factors contributing to the outbreak and institute control measures.

Methods: A descriptive and case-control study design was used for this outbreak. Suspected cases were defined as "any person, resident of Anwar-Gandaro village presented with ≥3 loose stools within 24 hours from May 24–June 142023". Eighty-four unmatched controls were selected from the same village against forty-two cases. In the village, an active case search was conducted, and collected stool (n=10) and water samples (n=05) were sent for laboratory examination. Data on demography, clinical profile, and risk factors were collected using a questionnaire. Hospital records were also reviewed. Frequencies and attack rates (AR) were calculated. Adjusted odds ratios (aORs) with 95% confidence intervals (C.I.) and p-value <0.05 were computed using multivariate logistic regression.

Results: A total of 42 cholera cases with 6 deaths (CFR=14.2%) were identified. The median age of cases was 5.3 years (range: 9-months to 85-years). The overall attack rate was 5.3/1,000: the most affected age group was <1-4 years (AR=25/1,000). A female preponderance was observed n=25(60%) with AR 6.4/1,000. Using water from a damaged filter plant (aOR=13; 95%CI=2.8-63.9), the presence of an ill person in the family (aOR=3.09; 95%CI=1.1-8.2), and open defection (aOR=2.6; 95%CI=1.1-6.6) were significantly associated with the disease. Handwashing before meals (aOR=0.1; 95%CI=0.04-0.3) showed a protective effect. Vibrio-cholera was found in 60% of stool samples, and 80% of drinking water samples showed fecal contamination.

Conclusions: Drinking water contamination due to damaged filter plants was the most probable cause of this outbreak. The damaged filter plant was repaired, chlorination tablets were distributed, and cases were managed according to WHO-recommended guidelines. Health awareness sessions were conducted for WASH activities. A comprehensive plan for the construction of more latrines and compliance with "no open defecation" with regular monitoring and adjustment of disinfectant is highly recommended.

Keywords: Outbreak Investigation, Thatta-Pakistan, Contaminated Inking Water

MATERNAL AND CHILD HEALTH

Title: Adverse Obstetric and Neonatal Birth Outcomes Among Syrian Women Refugees and Jordanian Women: A Comparative Study

Theme: Maternal and Child Health
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Country: Jordan

Background: Since 2011, Jordan has emerged as a major host country for the Syrian diaspora. Among the displaced population, women refugees face particular vulnerabilities. However, there is limited research examining the reproductive health status and service delivery for Syrian refugees in Jordan. Consequently, there is a lack of understanding regarding the risks of adverse pregnancy outcomes among Syrian women refugees and the extent of disparities in pregnancy outcomes.

Objectives: This study aimed to compare birth outcomes between Syrian refugees and Jordanian women.

Methods: Data from the Jordan Stillbirths and Neonatal Deaths Surveillance System were utilized to extract sociodemographic and obstetric characteristics of mothers and birth characteristics of newborns. Multivariate analysis was employed to compare the characteristics of 26,139 Jordanian women (27,468 births) and 3,453 Syrian women refugees (3,638 births) who delivered in five referral hospitals between May 2019 and December 2020.

Results: The findings revealed that the proportions of low birth weight (14.1% vs. 11.8%, $p<0.001$) and small for gestational age (12.0% vs. 10.0%, $p<0.001$) newborns were significantly higher among Syrian women compared to Jordanian women. Moreover, the stillbirth rate (15.1 vs. 9.9 per 1,000 births, $p=0.003$), neonatal death rate (21.2 vs. 13.2 per 1,000 live births, $p<0.001$), and perinatal death rate (21.2 vs. 13.2 per 1,000 births, $p<0.001$) were significantly higher among Syrian births compared to Jordanian births.

Conclusions: The study findings indicate that Syrian refugee mothers experience higher rates of adverse pregnancy outcomes compared to Jordanians. Enhancing maternal and neonatal care services for women refugees in Jordan is of paramount importance and should be prioritized in healthcare initiatives.

Keywords: Maternal Health, Adverse Birth Outcomes, Stillbirths, Syrian Refugees, Jordan

MATERNAL AND CHILD HEALTH

Title: Data Quality of International Medical Certificate of Cause of Death Online Reporting Platform of Special Care Newborn Unit in Bangladesh (2021-2022)

Theme: Maternal and Child Health
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Country: Bangladesh

Background: Perinatal mortality surveillance (PMS) in Bangladesh aims to reduce perinatal deaths as Sustainable Development Goal. Special Care Newborn Units (SCANU) captures perinatal deaths using the International Medical Certificate of Cause of Death (MCCoD). A Management Information System monitors the captured data at the District Health Information System (DHIS2).

Objectives: To assess the data quality of PMS in SCANU of Bangladesh using MCCoD.

Methods: We interviewed PMS stakeholders with a structured questionnaire to explore MCCoD data issues of the DHIS2. Perinatal death data in DHIS2 Event Reports of the "Cause of Death (MCCoD)" program are archived as a line list. We recorded a review of archived data (n=2427) for variables related to PMS indicators from six medical colleges and six district hospitals' SCANU that have been selected randomly from June 2021 to May 2022 to check missing values and errors. We compared a medical college hospital SCANU's paper-based register's data with the DHIS2 archive for the same period to check validity.

Results: Among the 27 stakeholders interviewed, 10 suggested "Fetal or Infant Death" and "Women of Reproductive Age" sections of the MCCoD form as important and seven (26%) faced difficulties in perinatal death reporting using MCCoD in DHIS2. Among 2427 reviewed forms, missing values were detected in certain variables: "Cause of Death" (seven cases, 0.3%), "Sex" (four cases, 0.2%), "Birth Weight in Grams" (642 cases, 26.5%), "Was stillborn" (800 cases, 33.0%), "Upazila" (100 cases, 4.1%), "Age of Mother in Years" (1,201 cases, 49.5%), and "Completed Weeks of Pregnancy" (2,281 cases, 94%). Erroneous values were identified in "Age of Mother in Years" (17 cases, 0.7%) and "Completed Weeks of Pregnancy" (two cases, 0.1%). There were 142 entries in visited SCANU's paper-based register while 145 in DHIS2. Out of the 142 entries, 19 were complete.

Conclusions: A high proportion of missing data in MCCoD is posing challenges in determining the cause of perinatal death and its attributes. We recommend a refresher training for MCCoD stakeholders and the introduction of a user-friendly MCCoD online reporting form.

Keywords: Data Quality, Cause of Death, SCANU, DHIS2, Bangladesh

MATERNAL AND CHILD HEALTH

Title: Incidence and Risk Factors of Congenital Hypothyroidism and Phenylketonuria in Egypt Results from the Egypt National Newborn Screening Program (2018-2021)

Theme: Maternal and Child Health
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Country: Egypt

Background: Congenital hypothyroidism (CHT) and Phenylketonuria (PKU) are congenital disorders that may lead to mental retardation, brain damage, or even death unless therapy is initiated soon after birth. Global rates of CHT and PKU are 1: 3000-1: 4000 and 1: 10,000-1: 15000 per live births respectively. Little is known about the incidence and risk factors for CHT and PKU in Egypt. The Egypt MoHP enforced a screening program for CHT and PKU for all Egyptian newborns in 2016.

Objectives: To calculate incidence and risk factors for CHT and PKU in Egypt to identify the size of the problem and help develop preventive strategies.

Methods: TSH assay is performed using Chemiluminescence to test for CHT. Amino acid analysis by ion exchange chromatography is used for PKU. National data of all newborns with CHT and PKU between 2018 and 2021 was obtained from the Central Public Health Laboratory database. Incidence was calculated using a 2018 census, and descriptive analysis of patient epidemiology and linear regression was performed between rates of PKU and CHT by governorate of residence vs. consanguinity and history of family disorder as risk factors.

Results: Of 9,087,991 tested newborns, 5,638 (0.06%) were positive for CHT giving an incidence of 1: 1612 live births with an M/F ratio of 0.62. The highest rates were found in Mid-Egypt and North Sinai. Incidence increased from 1: 1800 to 1: 1490 between 2018-2021. While 3447 (0.04%) were positive for PKU, with an incidence of 1: 2638 live births, M/F 1.1, the incidence decreased from 1/2614 to 1/3300, with higher rates found in Lower Egypt and South Sinai. PKU was positively correlated with consanguinity and familial disorders, while CHT was not.

Conclusions: The study identified a higher incidence of CHT and PKU in Egypt compared to global rates. Incidence is highest among rural and nomadic governorates with a high level of consanguinity. Raising awareness of the risk of consanguinity in areas with high rates is recommended for disease prevention. It is also recommended to maintain the National Program for Screening to prevent disease consequences. Additional studies are needed to better identify risk factors of CHT and PKU in Egypt.

Keywords: Phenylketonuria, Hypothyroidism, Screening, Incidence, Egypt

MATERNAL AND CHILD HEALTH

Title: Prevalence and Associated Risk Factors of Hepatitis in Pregnant Women Visiting a Rural Health Center Pakistan (March-August 2022)

Theme: Maternal and Child Health
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Country: Pakistan

Background: Viral hepatitis during pregnancy is associated with a high risk of maternal complications and vertical transmission to offspring. It has also been reported as a leading cause of maternal death.

Objectives: The objective was to determine the prevalence and associated risk factors of Hepatitis B and C in pregnant women visiting a Rural Health Center in South Punjab Pakistan from March to August 2022.

Methods: A prevalence survey was carried out among pregnant women (N=166) visiting the antenatal clinic of the Rural Health Center in South Punjab from March to August 2022. Pregnant women were enrolled via non-probability consecutive sampling after taking informed formal consent. Women having a history of previous liver diseases, diabetes, pre-eclamptic, and toxemia were excluded from the study. A semi-structured questionnaire was used to collect data on risk factors. Blood samples were taken for screening of Hepatitis B &C.

Results: Median age of respondents was 27 (Range 19-42), Prevalence of Hepatitis B and C was found to be 8.4 % and 9% respectively with 1.2% co-infection. In Hepatitis B-positive women, Family history of HBV (p=0.03), history of Intravenous (I/v) injections use (p=0.02), previous history of blood transfusion (p=0.04), and parity (p=0.04) were found to be statistically significant risk factors. Similarly, in Hepatitis C-positive women following factors i.e. family history of HCV (p=0.02), history of I/v injection use (p=0.02), and age of female (p=0.002) were found to be statistically significant.

Conclusions: These findings suggested that a family history of both HCV and HBV and a history of I/v injection use were common among hepatitis-positive women. There is a need to emphasize the importance of considering these risk factors in antenatal care and implementing preventive measures to reduce the transmission of viral hepatitis during pregnancy.

Keywords: Prevalence, Hepatitis B, Hepatitis C, Pregnant Women, Rural Health

NON-COMMUNICABLE DISEASES

Title: Barriers to Seeking Tobacco Cessation Services from University Students' Perspectives in Qatar: A Qualitative Study

Theme: Non-Communicable Diseases
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Country: United States

Background: The prevalence of tobacco use in the Middle East is alarmingly high with being widely prevalent among university students since most users initiate this habit during adolescence and young adulthood. Evidence-based cessation services can be highly beneficial for people willing to quit tobacco use; however, these services are underutilized.

Objectives: This study aimed to explore the barriers to seeking tobacco-cessation services among university students in Qatar.

Methods: Semi-structured interviews were conducted with 20 university students who are current/former tobacco users (N = 18/2), with most student cigarette smokers being waterpipe users. The interviews were transcribed verbatim, coded, and analyzed using thematic analysis.

Results: In addition to negative attitudes toward cessation services, participants had misconceptions about nicotine addiction and reported high self-efficacy regarding their ability to quit without assistance. Cultural beliefs and social stigma were barriers to seeking cessation services. Other participants voiced their concerns over the characteristics of practitioners at the clinics and expressed having a lack of time to visit the cessation clinics.

Conclusions: Our findings address gaps in the literature regarding the various barriers to seeking tobacco cessation among youth in Qatar. A better understanding of these barriers can promote tobacco cessation services and enhance cessation-seeking behaviors.

Keywords: Tobacco Cessation, University Students, Barriers, Culture, Social Stigma, Qatar

NON-COMMUNICABLE DISEASES

Title: Effect of Ramadan on Tobacco Cessation Among Heavy and Non-Heavy Smokers

Theme: Non-Communicable Diseases
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Country: Tunisia

Background: Changes in smoking patterns include the ability to modify smoking behavior without pharmacological intervention and without experiencing severe symptoms of abstinence. These changes are variable from one person to another and even with the concerned person.

Objectives: The study aimed to compare the effect of Ramadan on tobacco cessation among heavy and non-heavy smokers.

Methods: We conducted a cross-sectional descriptive study among smokers during the month of Ramadan 2023 in Tunisia. We used an auto-administered online survey. Smokers were divided into two groups: heavy smokers (>20 cigarettes per day) and non-heavy smokers (<20 cigarettes per day).

Results: In total, 61 persons filled out the questionnaire: 45.9% were heavy smokers. Almost half of the males were heavy smokers (57.1%) and 21.1% of females were heavy smokers. The mean age of the group was 35.1±11.2 [23 – 75]: the mean age of the heavy smokers was 42.8±12 and the mean age of the non-heavy smokers was 28.6±4. Twenty-three percent had at least one medical history. Participants were from 10 different governorates: 31.1% from Ariana, and 34.4% from Tunis. Cigarettes were consumed by 91.8% of the group: 96.4% of the heavy smokers consumed it and 87.9% of the non-heavy smokers consumed it. During Ramadan, cigarette consumption decreased in heavy smokers and non-heavy smokers: from 28.8±11 to 19.9±14 ($p<0.01$) and from 7.3±4 to 4.2±3 ($p<0.01$); respectively. Only non-heavy smokers consumed Chicha, with an increase in consumption in Ramadan: 2.5±2 to 6.5±4.9 Chicha per month ($p=0.2$). During Ramadan, cigarette cravings decreased only in non-heavy smokers: 2.06±1.2 to 1.4±1, $p=0.02$ (was 3.1±1 in heavy smokers). The mean number of the urge to smoke decreased in heavy smokers and non-heavy smokers: 8.5±2 to 6.8±3, $p=0.01$ and 4.3±2 to 2.1±1, $p<0.01$ respectively. More than half the groups (64.3% of the heavy smokers and 72.8% of the non-heavy smokers) thought about quitting smoking before Ramadan. Tobacco cessation before Ramadan was higher among non-heavy smokers 27.3% VS 10.7%, $p=0.1$. During Ramadan, 50% of the heavy smokers thought about quitting smoking and 69.7% of the non-heavy smokers thought about quitting smoking. During Ramadan, tobacco cessation was significantly higher among non-heavy smokers: 51.5% VS 25%, $p=0.03$.

Conclusions: Tobacco cessation during Ramadan was higher in non-heavy smokers. Heavy smokers should use medically proven methods to quit smoking and should prepare for tobacco cessation before Ramadan. Awareness about Chicha consumption should target all smokers, especially non-heavy smokers.

Keywords: Tobacco, Ramadan, Tunisia

NON-COMMUNICABLE DISEASES

Title: Medication Adherence Among Diabetes Mellitus Patients and Its Associated Risk Factors in Sindh-Pakistan (May-June 2023): A Hospital-Based Cross-Sectional Study

Theme: Non-Communicable Diseases
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Country: Pakistan

Background: In 2021, Pakistan ranked 3rd globally in diabetes prevalence with 33.0 million cases (20–79 years) and 0.4 million deaths. Adherence to prescribed diabetics drugs delayed the onset of complications and deaths. Information on medication adherence among diabetes patients is sparse in Sindh-Pakistan

Objectives: This study aimed to document medication adherence in patients with diabetes and associated factors.

Methods: A cross-sectional study was conducted (sample size n=348) at the diabetic clinic of Liaquat University Hospital in Hyderabad between May and June 2022. Patients were systemically sampled, and information regarding adherence to diabetes medications was measured using the 8-item Morisky Medication Adherence Scale. All participants also completed a questionnaire containing sociodemographic and clinical variables. Inclusion criteria were as follows: patients with type 1 and 2 diabetes under diabetes medication for the past three months (minimum) aged ≥ 18 years. The odds ratio with a 95% confidence interval and p-value < 0.05 was computed to determine the association between diabetic medication non-adherence and associated factors.

Results: The mean age of the 348 participants interviewed was 48 years (SD 13.0). Overall, 68% (n=238) of respondents had poor medication adherence. Being in the age group of 40 and above (OR=2.3, 95%CI 1.5–3.9), female (OR=2, 95%CI 1.2–3.1), and diabetic for more than 5 years (OR=4.3, 95%CI 1.9–9.4), and a rural resident (OR=2.4, 95%CI 1.0–5.3) had higher odds of non-adherence to anti-diabetic medications.

Conclusions: The level of adherence to anti-diabetic medication was found to be suboptimal. Health education sessions focused on rural areas and the female population may improve compliance. Capacity building of HCW for the identification of patient's level of adherence is highly recommended.

Keywords: Diabetes Mellitus, Non-adherence, Compliance, Sindh-Pakistan

NON-COMMUNICABLE DISEASES

Title: Obesity And Fast-Food Consumption Associated with Hypertension Among Restaurant Workers in Jordan

Theme: Non-Communicable Diseases
Authors: Shayma Taha (shaymataha97@gmail.com)
Country: Jordan

Background: Fast food consumption among those who work in restaurants is a regular occurrence. Frequent consumption of high-caloric foods is a leading cause of obesity which is also a modifiable risk factor for hypertension. Studies predict that the prevalence of hypertension will rise by 7.2% by 2030 compared to 2013 projections, demonstrating the urgent need for treatments to address the etiology of hypertension.

Objectives: This study's primary objective is to investigate how fast food intake, portion size, obesity, and hypertension are related among restaurant workers in Amman, Jordan.

Methods: A descriptive quantitative, cross-sectional design was applied to investigate whether or not there is an association between obesity, regular intake of fast food, and high blood pressure among employees in the food services industry. A convenience sample of 386 restaurant employees was recruited from various restaurants in Amman, Jordan. A self-administered questionnaire that asked about food products, frequency of consumption, and portion size was used to gather data. An electric blood pressure monitor was used to track the sample's blood pressure while anthropometric measurements were obtained to determine height and weight. The chi-square test and Spearman rank-ordered correlation approach were used for the study.

Results: The analysis tests indicate that there is a significant positive correlation between the frequency of fast food consumption and hypertension ($r = 0.513$, $p < 0.001$). The second correlation test analysis indicates that there is a significant positive correlation between the portion size of fast food and body mass index ($r = 0.529$, $p < 0.001$). In addition, there is a significant positive correlation between the age groups and hypertension ($X2 = 27.686$, $p < 0.001$), a significant positive association between obesity and the males of the participants ($X2 = 33.134$, $p < 0.001$), and a significant positive association between obesity and age groups ($X2 = 32.132$, $p < 0.001$).

Conclusions: The significant association between fast food, obesity, and hypertension among restaurant workers points out that fast food consumption is related to high rates of developing obesity and hypertension among restaurant workers. Data should be used by both health experts and management in the development of workplace health interventions that emphasize restaurant employees.

Keywords: Obesity, Fast food Consumption, Hypertension, Restaurant Workers, Jordan

NON-COMMUNICABLE DISEASES

Title: Prevalence of Electronic Cigarettes in Jordan and its Associated Factors: Secondary Data Analysis

Theme: Non-Communicable Diseases
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Country: Jordan

Background: The popularity of electronic cigarettes has been on the rise globally, prompting investigations into their prevalence and usage patterns across various populations. However, their prevalence remains underexplored in several countries, including Jordan.

Objectives: This study aimed to determine the prevalence and characteristics of current e-cigarette use among Jordanian adults.

Methods: A secondary analysis was conducted using cross-sectional data collected from the 2019 Jordan STEPwise survey. The study involved a representative sample of Jordanians aged 18 years and older. Face-to-face interviews were conducted using a structured questionnaire that covered sociodemographic characteristics, health-related behaviors, and current e-cigarette use. Descriptive statistics and Chi-Square tests were employed to analyze the collected data.

Results: The study included a total of 3,772 participants, comprising 1,696 men and 2,076 women. The prevalence of current e-cigarette use was 6.3%, with significantly higher rates among men (11.7%) compared to women (1.9%, $p<0.001$). Among age groups, younger adults exhibited the highest prevalence at 7.3%. The prevalence rates for the age groups of 36-49 years and 50-69 years were 6.2% and 4.5%, respectively. Notably, e-cigarette use was more prevalent among Jordanians compared to other nationalities (7.8% vs. 4.3%). In addition, higher prevalence rates were observed in the northern region of Jordan (7.6%) compared to the middle (4.1%) and southern regions (6.9%). E-cigarette use was also more common among those with a postgraduate degree (19.5% vs. 6.2%, $p<0.001$) and single individuals (10.5% vs. 5.4%, $p<0.001$).

Conclusions: Compared to neighboring countries, the prevalence of current e-cigarette use among Jordanians was relatively low. However, specific demographic groups showed higher rates of e-cigarette use, including men, younger adults, Jordanians(in contrast to non-Jordanians living in the country), residents of the northern region, individuals with postgraduate degrees, and single individuals. Targeted education campaigns, policy changes, and the provision of cessation support services are highly recommended to address potential risks and prevent a future increase in e-cigarette usage.

Keywords: E-Cigarette Use, Jordan, Electronic Cigarettes, Smoking

NON-COMMUNICABLE DISEASES

Title: The Determinants of Delays in Diagnostic and Therapeutic Management of Patients with Colorectal Cancer at the National Institute of Oncology Rabat

Theme: Non-Communicable Diseases
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Country: Morocco

Background: In Morocco, cancer is a major public health concern. For the last ten years, colon and rectum remained the third most common localizations of cancer considering both sexes. Advanced diagnosis is often associated with poor prognosis and reduced survival rates. However, the delay between onset of symptoms and diagnosis or treatment was also considered a predictor of stage and survival.

Objectives: This study aimed to determine the delays in the diagnosis and treatment of CRC and the factors associated with them.

Methods: We conducted a retrospective cross-sectional study on CRC cases admitted to the National Institute of Oncology during 2015-2016. We collected sociodemographic, clinical data, and data on the care pathway from medical records. We defined diagnosis and treatment delays, respectively, as the time interval between the first symptom onset and diagnosis date as well as diagnosis date and first treatment date. We applied a quantile regression analysis to determine the factors associated with these delays.

Results: A total of 321 CRC cases were included. The average age was 58 and the female/male sex ratio was 1.09: 1. In 21.9% of cases, urgent surgery was the discovery mode of the tumor. The median time of diagnosis and treatment was 3 months and 33 days respectively. These delays were longer in rectal cancer than in colon cancer. The median time of CRC diagnosis would be delayed by 2 months in case of rectal bleeding (p-value <0.01). The type and treatment location were the most factors associated with the time to treatment (p-value <0.01).

Conclusions: The study results showed that the clinical signs did not contribute to an early diagnosis. It would then be essential to set up an effective screening program as well as standardize deadlines concerning treatment, thus allowing early management of CRC before the appearance of alarming signs.

Keywords: Colorectal Cancer, Delay, Diagnosis, Treatment, Factors, Morocco

OUTBREAK INVESTIGATIONS

Title: An Outbreak Investigation for a Toxicological Event of Phosphine Gas Poisoning in Bethlehem, Palestine (2022)

Theme: Outbreak Investigations
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Country: Palestine

Background: In December 2022, in Beit-Sahoor, Bethlehem, multiple residents from one building were admitted to a hospital with dyspnea and gastrointestinal upset that progressed to deteriorating consciousness. We hypothesized it was a toxic agent since one of the residents used Phosphene gas as a fumigant on December 18, 2022.

Objectives: We investigated to confirm the source exposure, and to implement control measures if necessary.

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

Results: We identified 14 cases. 9 visited GP/ER and were discharged, and 5 cases were hospitalized, of which 2 were admitted to the ICU where a 7-year-old girl died. The other fatality was a 2-year-old boy from the same apartment who was brought to the ER dead on arrival a couple of hours earlier. There were no cases from the apartments adjacent to Apartment 5; however, 93% (n=13) of cases lived in the east wing (RR=20: p=0.002). This confirmed an association between cases and the vertical proximity to Apartment 5 in the east wing where 100+ aluminum 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 re-circulating it.

Conclusions: Epidemiological and environmental investigations confirmed that aluminum 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 aluminum phosphide.

Keywords: Aluminum Phosphide, Phosphine, Retrospective Studies, Pesticides

OUTBREAK INVESTIGATIONS

Title: An Outbreak of Typhoid Fever in the Largest Slum of Dhaka: Possible Association with the Disruption of Existing Water Distribution Network in Bangladesh (2023)

Theme: Outbreak Investigations
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Country: Bangladesh

Background: An outpatient clinic in the Karail slum, Dhaka reported to health authorities an increase in typhoid fever patients on March 16, 2023. A quick response was required to prevent the spread and reduce illnesses.

Objectives: To determine the scope and magnitude and confirm the agent and probable source(s) to contain the outbreak.

Methods: We conducted a descriptive epidemiological study in the Karail slum from March 18 to 30, 2023 starting with the notifying clinic. We went house-to-house to identify suspected cases defined as people with fever ≥3 days with/without abdominal cramps/vomiting/loose motion/constipation/fatigue since January 1, 2023. Probable cases were defined with a Widal test titer ≥1: 320 and confirmed cases were defined with a blood culture isolating Salmonella Typhi. We explored the surrounding environment and tested municipal water samples from different points for Salmonella spp. and fecal coliforms. A descriptive analysis was performed.

Results: We identified 110 cases: suspected 68%, probable 9%, and confirmed 23%. Their disease onset ranged from January 13 to March 23, 2023; 54% were male, median age was 14 years (IQR, 9-25), 46% students, and 66% of cases were from two out of six units of the slum. Municipal water was used for drinking in 89% (n=110) cases and 65% (n=98) drank it without purification. Limited water supply and numerous unregulated connections were found. A new water distribution network has been under installation since December 2022 to replace the existing system. Geographic information system mapping of cases' residences revealed that their disease onset followed installation progress. We identified leakages in sewage lines leading to environmental contamination. Fecal coliforms were isolated in 5 (56%, n=9) water samples; though, Salmonella spp. was not isolated.

Conclusions: Disruption of the existing water supply system during the installation process and subsequent contamination likely contributed to this outbreak. Necessary measures to repair leakages for safe water supply and precaution during the remaining installation activities are recommended.

Keywords: Typhoid fever, Outbreaks, Water Supply, Slum, Bangladesh

OUTBREAK INVESTIGATIONS

Title: Foodborne Outbreak Investigation in Makkah City, Saudi Arabia (2022): A Case-Control Study

Theme: Outbreak Investigations
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Country: Saudi Arabia

Background: Foodborne diseases are a major public health concern worldwide, particularly in Saudi Arabia. Salmonella species are the most common pathogens causing these illnesses, with high rates occurring during the Hajj and Umrah seasons.

Objectives: To confirm the existence of the outbreak, confirm the diagnosis, define and identify the cases, identify the source of the outbreak, determine the causative organism if possible, and its mode of transmission, and recommend preventive measures to be applied to prevent similar outbreaks.

Methods: A case-control study with a ratio of 1: 1 was carried out. Cases were defined as persons who ate dinner at a specific hotel restaurant in Makkah City on December 19, 2022, and developed gastrointestinal illness. Controls were persons who ate dinner from the same restaurant without reporting symptoms. We collected information on demographics, symptoms, and food history using a semi-structured questionnaire. We reviewed available laboratory results for cases and environmental samples. Data was analyzed by SPSS.

Results: There were 72 Umrah pilgrims in total: 36 cases and 36 controls. There were no hospitalizations or deaths, and all cases were discharged. Cases were 66.6% male, 63.8% Tajiks and 36.2% Uzbeks among cases, and the mean age was (52.3) years. 94.4% of cases reported diarrhea, abdominal pain (91.6%), and fever (91.6%). The incubation period ranged from 3-21 hours. Cases (91%) were significantly more likely to report eating meat than controls (38.8%) (OR = 17.2, P-value 0.00003). Laboratory tests were performed on 15 patients. Salmonella was found in all five cases who underwent rectal swabs. Stool cultures were performed in 10 patients: 7 were salmonella positive. Laboratory testing isolated Salmonella spp. from salad. For meat, the sample was not taken as the meat was consumed.

Conclusions: Based on symptoms, incubation period, epidemiological investigation, and laboratory results, this outbreak was most likely caused by Salmonella infection. A significant P value indicates a strong association between meat and this outbreak. We recommend a higher level of supervision and periodic examination for food handlers.

Keywords: Foodborne, Salmonella, Outbreak, Makkah, Saudi Arabia

OUTBREAK INVESTIGATIONS

Title: Meningitis Outbreak in the North of Iraq(2023)

Theme: Outbreak Investigations
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Country: Iraq

Background: Meningitis is still a major public health problem, with outbreaks occurring globally. In April 2023, there was a notable admission of patients with a clinical diagnosis of meningitis in Sulaymaniyah and Halabja cities in the north of Iraq. A team was formed to investigate the outbreak.

Objectives: To investigate and describe the outbreak, identify the causative agent, and recommend preventive measures.

Methods: This is a hospital-based, cross-sectional study with data from patient records in two pediatric hospitals in Sulaymaniyah and Halabja. The meningitis case was defined as an illness with sudden onset of fever and one or more of the following: neck stiffness, altered consciousness, other meningeal signs, and petechial or puerperal rash. In patients < 1 year, suspected meningitis when fever is accompanied by bulging fontanelle. A case investigation form was prepared using the Kobo Toolbox to collect data from patients' records. This was exported to and analyzed by MS Excel.

Results: The records of 63 patients were recruited from the hospitals: 38 were in Halabja (60.3%) and 25 were in Sulaymaniyah (39.7%). The first case was a six-year-old child from Halabja reported on April 5. Fever, nausea and vomiting, and headache were the most frequent manifestations. Males constituted 65.1% of the cases. The under-five age group constituted 63.5%, and the mean age was 5.7 ± 3.2 years. Most patients (95.2%) had no travel history, while 9.5% had a contact history with similar cases. Those negative for meningitis culture constituted 37.7%. Two patients had a positive laboratory test revealing viral meningitis due to Enterovirus. No mortalities were recorded.

Conclusions: The outbreak in both cities constituted an ongoing risk that needs to be addressed by implementing infection control measures to prevent further spread within health institutions and the community. The laboratory capacity for viral and other causative pathogens of meningitis must be strengthened to ensure timely diagnosis.

Keywords: Meningitis, Outbreak, Iraq, Epidemiology

OUTBREAK INVESTIGATIONS

Title: Outbreak Investigation and a Case-Control Study of Varicella/ Chicken Pox- in Village Jhangi Sayyedan, Pakistan (April 20, 2021 to June 20, 2021)

Theme: Outbreak Investigations
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Country: Pakistan

Background: Chickenpox is primarily a disease of children; however, it can also infect adults of any age group. As soon as information was received about 2 cases of chickenpox, a team of FELTP fellows was formulated to carry out field investigations.

Objectives: The objective was to confirm the existence of an outbreak, assess the magnitude of the outbreak, identify the risk factors, and suggest recommendations for future prevention and control.

Methods: A descriptive study followed by a case-control study was carried out. A case was defined as "any resident of village Jhangi Sayeddan having fever > 100°C and maculopapular rash along with any of the associated symptoms: mouth ulcers, itching, flu, vomiting, or joint pains during last 21 days'. A pre-tested questionnaire was used to collect information on demographics, clinical features, risk factors, and vaccination status. An active case search was carried out in 107 houses having 635 residents. A total of 18 cases were identified as having one index case with a travel history from North Waziristan. Descriptive analysis was carried out and odds ratios were computed at 95% CI. Univariate and multivariate analysis was performed.

Results: The age range of cases was 1.5 to 34 years. The median age was 14.5 years. The most affected age group was 10 -19 years (AR 50 %). Risk factor analysis revealed that the most significant factors associated with the outbreak were: contact with cases (OR: 18.17, p-0.000), poor vaccination status (OR: 10.5, p-0.000), lack of awareness about isolation (OR: 10.46, p- 0.000), and mother's illiteracy (OR: 6.06, p-0.001). Inferential analysis showed contact with cases was the strongest predictor (OR: 21.7, p-0.007).

Conclusions: The most probable reason for the outbreak was contact with cases and poor vaccination status. There is a need to enhance parental awareness of isolation by involving Lady Health Workers as well as the provision of vaccination in an accessible way.

Keywords: Chicken Pox, Case-Control Study

OUTBREAK INVESTIGATIONS

Title: Outbreak Investigation of Acute Watery Diarrhea in a Village of District Lasbela of Balochistan (May 2023)

Theme: Outbreak Investigations
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Country: Pakistan

Background: On May 18, 2023, fifteen patients were reported by the health facility of Halaid Goth in District Lasbela to have acute watery diarrhea. Seven were admitted to Civil Hospital Bela. The Provincial Disease Surveillance and Response Unit under the Director General Health office formulated a team for investigation.

Objectives: We carried out an investigation to determine the magnitude of the outbreak, evaluate associated risk factors, and implement control measures.:

Methods: Descriptive analysis followed by a case-control study was conducted with the cases control ratio 1:1. Case was defined as any person resident of Halaid Goth presented with loose motion, dehydration, and/or fever, vomiting, and abdominal cramps from May 13 to 23,2023. Age and sex-matched controls were taken from the community. Active case finding was done. A structured questionnaire was used to collect information on demographics, clinical presentation, and risk factors. Water and stool samples were sent to the microbiology laboratory. Descriptive analysis was done, and logistic regression was applied to compute adjusted OR (aOR) at 95% CI.

Results: Of the 58 cases, 43 were identified through active case finding. The mean age was 22 years (SD=+15.8). Male to female ratio was 1: 2.41. The most common symptoms were diarrhea (100%) followed by abdominal cramps (72%) and vomiting (59%). The overall attack rate was 5.7 %, whilst the most affected age group was 30-39 with an AR of 12%. The epi curve showed a common intermittent source. Among risk factors, water from tube-well (aOR=95, CI=4.48-2034) and open tanks (aOR=19.71, CI=1.24-312) were significantly associated, while boiled water use had a protective effect (aOR=0.08, CI=0.01-0.58). Water samples indicated the presence of fecal coliform, while stool samples indicated the presence of Klebsiella pneumoniae and Escherichia coli.

Conclusions: The outbreak was attributed to poor sanitation and contaminated water. Awareness sessions regarding boiling water and hand hygiene were conducted. Aquatabs were provided for water decontamination.

Keywords: Diarrhea Outbreak, Lasbela, Balochistan, Pakistan

OUTBREAK INVESTIGATIONS

Title: Outbreak Investigation of Measles in the Flood-Affected Village District Dadu, Pakistan (January 2023)

Theme: Outbreak Investigations
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Country: Pakistan

Background: On January 12, 2023, social media reported seventeen suspected measles cases with five deaths in village Khandani Shahani of district Dadu which was a flood-affected area with an estimated population of 4,000. A team of FETP fellows was formed.

Objectives: To determine the magnitude of the outbreak, evaluate risk factors, and recommend prevention and control measures.

Methods: We used s descriptive and unmatched case-control study (55 cases: 110 control). The case was "any resident of village Khandani Shahani having a history of fever and non-vesicular maculopapular rash from December 5, 2022 to February 5, 2023. Controls were free from symptoms of measles and were from the same community. An active search was conducted and hospital records were reviewed. Information on symptoms, risk factors, vaccination status, and outcome was gathered. A total of ten (n=10) blood samples were collected and sent for laboratory confirmation. A vaccination coverage survey among children aged 9–59 months was conducted and vaccine efficacy was calculated. Frequencies and attack rates were computed. Adjusted odd ratio (aOR) at 95% confidence interval (CI) and p-value <0.05 was calculated by multivariable logistic regression.

Results: A total of 55 suspected measles cases were found (38 through active search) with 5 deaths (CFR 9%). Median age was 6 years (range: 11 months to 26 years). The overall attack rate was 14/1000, and the predominant affected age group was 5-9 years (n=27: attack-rate=40/1000). Males were highly affected (n=29, attack rate=14/1000). The cases had rash onset between December 22, 2022 and January 21, 2023. A total of 32(58%) cases were unvaccinated. Vaccine coverage was 36% while vaccine efficacy was 92%. Being unvaccinated against measles (aOR=2.0, 95% CI=1.8-2.8) and malnourished aOR=3.0, 95%CI=1.1-7.7) were associated with illness. A total of 7 samples were confirmed for measles by the laboratory.

Conclusions: Low vaccination coverage was most probably linked to the outbreak. Measles mop-up vaccination activities along with administration of Vitamin A were conducted. Health awareness sessions were done in the affected village. Healthcare workers were trained in disease surveillance, outbreak investigation, early diagnosis, and case management.

Keywords: Measles, Outbreak, Flood-Affected Village, Pakistan

OUTBREAK INVESTIGATIONS

Title: Potential Risk Factors of Cutaneous Leishmaniasis in a Newly Affected Region of Yemen: A Case-Control Study

Theme: Outbreak Investigations
Authors: Fatima Belhmer (Fatimabelhmer202@gmail.com), Sumia Al-Turki (sumia.alturki@yahoo.com), Labiba Anam (labibaanam25@gmail.com)
Country: Yemen

Background: Yemen faced several outbreaks of Cutaneous Leishmaniasis (CL) in different regions while no sources are confirming the occurrence of a leishmaniasis outbreak in Bani- Hushish district. On October 11, 2022, the electronic Integrated Disease Early Warning System was notified of an increase in the number of CL cases in Bani- Hushish district. An FETP team was sent to investigate the cases on October 12, 2022.

Objectives: To describe the epidemiology of CL outbreak and identify its risk factors.

Methods: A descriptive study followed by a case-control study was conducted. Cases were people who met the suspected or confirmed case definition of the World Health Organization and have lived in the Saraf sub-district since August 25, 2022. Controls included people living in the same area and not suffering from any new or old skin lesions diagnosed as Leishmaniasis. Data collected were on individuals' housing and animal-related characteristics. Skin scrapings were collected and sent to the laboratory. Odds ratios (ORs) with 95% CIs were used to test the significance of associations. P value <.05 was considered statistically significant.

Results: A total of 25 cases met the case definition. 80% were males and 34% were aged <10 y. Al-Dhari village was the most affected area (attack rate was 28/1000). The lower limbs were the most affected parts 74%, and 43% of cases had two skin lesions. Factors were significantly associated with CL: male gender (OR3.7, CI 1.1-12.9) age<15y(OR 3.4, CI 1-11.4), animal manure(OR 24.4, CI 4.6-130), barn in houses(OR 15.6, CI 3.6-67.8) , people raising an animal(OR 13,CI 3-55.9), sleeping outdoors(OR11.2,CI 1.3-98.9), houses near gorge(OR 4.6 CI 1.4-15.4), and poor sanitation(OR 11.2, CI 1.3-99):

Conclusions: The outbreak of CL was confirmed in the Saraf sub-district by laboratory testing. Many human and environmental factors were significantly associated with CL infection. Conducting an awareness campaign, ensuring good sanitation in the area, and encouraging people to get rid of the places where the vector fly is available are recommended.

Keywords: Case-control, Cutaneous Leishmaniasis, Outbreak, Bani-Hushish

OUTBREAK INVESTIGATIONS

Title: Rift Valley Fever Epidemic Investigation in Hodh Gharbi Region, Mauritania (October 2022)

Theme: Outbreak Investigations
Authors: Ramdhane Mohamed (mouhamed.ramdhane@gmail.com)
Country: Mauritania

Background: The Hodh El Gharbi region of Mauritania has reported one case of death due to Rift Valley Fever (RVF). An investigation was conducted to determine the extent of the epidemic by tracking down additional cases and reducing its impact on the community.

Objectives: Investigate the Rift Valley Fever epidemic in the Hodh Gharbi region of Mauritania in October 2022.

Methods: A descriptive cross-sectional study was conducted from October 4 to 14, 2022, on RVF cases, and an active search was conducted in the districts that had notified cases. The data were analyzed with Excel 2016 and Epi info7 and presented in the form of tables, graphs, and maps.

Results: A total of 13 cases of RVF have been reported as of October 14, 20222. The cases came from the districts of Aioun, Tintan, Touil, and Koubeni. The average age of the cases was 23.5 years ±3.9 years with a male predominance of 83% and a sex ratio (M/F) = 5. The attack rate of the 5 confirmed cases was 5 cases per 10000 inhabitants in the district of Koubeni, 3 cases per 10000 inhabitants in the district of Tintan, and 1 case per 10000 inhabitants in the district of Touil and Aioun. Among the reported cases, 100% had contact with livestock. The patients presented with fever, muscle pain, and bleeding.

Conclusions: Our investigation confirms the existence of an epidemic of RVF in the Hodh Gharbi region, especially in young subjects with a strong male predominance which is more observed in the district of Tintane with a high lethality. We recommend that the community heat milk, leather, and meat before any use or consumption. Also, it is recommended to avoid handling animal abortions with bare hands and sleeps with no protection from mosquitos.

Keywords: Investigation, Epidemic, Rift Valley Fever, Hodh Gharbi

OUTBREAK INVESTIGATIONS

Title: Risk Factors for Measles Deaths Among Chilen During Measles Outbreak inHajjah, Yemen (2021-2023)

Theme: Outbreak Investigations
Authors: Abdullah Gafer (abdullahgafer317@gmail.com)
Country: Yemen

Background: Recent conflict and war in Yemen led to the collapse of the health system, a decrease in immunization coverage, and the spread of many outbreaks. Surveillance data from a large measles outbreak in Hajjah governorate suggested an increased case-fatality ratio (CFR) compared with previous outbreaks.

Objectives: To identify risk factors for measles death, we conducted a case-control study among infants and children hospitalized for measles.

Methods: The analysis was carried out using CDC guidelines for surveillance analysis. Electronic Integrated Diseases Early Warning System (eIDEWS) program in Hajjah data was used to identify hospitalized cases of laboratory-confirmed or epidemiologically linked measles in infants and children aged < 59 months with fever and rash onset from August 2021 to March 2023. We abstracted medical records of 30 fatal cases ("cases") and 150 non-fatal cases ("controls") matched by age, sex, district of residence, and urban/rural place of residence. We calculated univariable and multivariable matched odds ratios (OR) and 95% confidence intervals (CIs) for risk factors.

Results: Seventy-three percent of case patients and controls did not receive the vaccine. The results from the univariable and multivariable conditional logistic regression for measles mortality among cases and controls showed that cases were more likely than controls to have had a history of malnutrition and Anemia (OR: 2.8,9.3; 95%). Pneumonia and Meningitis complications of measles were significantly associated with death (OR: 15.4,6.8; 95%).

Conclusions: Because of a safe and effective measles vaccine, each death related to measles is a "preventable tragedy that could have been avoided through vaccination.' Implementing World Health Organization (WHO) recommendations for Vitamin A supplementation and improving immunization of children to prevent influenza, pneumococcal, and other bacterial respiratory diseases may decrease complications and deaths due to measles in Yemen.

Keywords: Measles, Death, Yemen, Risk Factor

POLIO AND AFP SURVEILLANCE

Title: Acute Flaccid Paralysis Cases Descriptive Epidemiology in the Context of Routine Immunization and Supplementary Immunization Activities in Mardan District, Pakistan (2022)

Theme: Polio and AFP Surveillance
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Country: Pakistan

Background: Pakistan is one of two remaining countries endemic to the wild Poliovirus. Functional Acute Flaccid Paralysis (AFP) Surveillance system is one of four strategies of the Global Polio Eradication Initiative. Strengthening Routine Immunization with supplementary immunization activities (SIAs) has a major role in improving the immunization status of the under-five population.

Objectives: Description of AFP cases in terms of time, place, and person to improve routine immunization services and SIAs.

Methods: A cross-sectional study was conducted to record the outcome of AFP cases in Mardan district in 2022. Through active AFP surveillance, cases were identified and investigated as per World Health Organization (WHO) guidelines and tools. Analysis of AFP secondary data reported at health facilities was analyzed to correlate routine immunization and SIA coverage with AFP cases. AFP surveillance performance indicators data was evaluated. Descriptive statistics of AFP cases were computed including frequencies, mean, median, proportions, and standard deviation by using EPI Info 7.2.

Results: A total of 393 cases were reported in 2022 by AFP Surveillance. 80% of adequate cases were within the median age of 35 weeks (Range 3 to 179). The majority of cases were male 57%. 58% were reported from July to December 2022. Weakness in the right leg was reported in 38% of cases. The majority were diagnosed as Injection Neuritis 45%. 13% of cases were zero doses, 83% were vaccinated for Penta-III, and 95% had more than seven Oral Polio Vaccine (OPV) doses in SIAs. Non-Polio AFP rate in children <15 years was 32/100,000 population with 83% stool adequacy. 100% were investigated within two days of notification. Suboptimal notification within seven days was 73%.

Conclusions: As AFP surveillance is well in place in the district for identifying suspected polio cases more effort is needed to improve early notification of cases.

Keywords: Epidemiology, Poliomyelitis, Acute Flaccid Paralysis, Mardan, Pakistan

POLIO AND AFP SURVEILLANCE

Title: Acute Flaccid Paralysis Surveillance in Lebanon (2022)

Theme: Polio and AFP Surveillance
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Country: Lebanon

Background: Acute Flaccid Paralysis (AFP) Surveillance is one pillar of the Global Polio Eradication Initiative. Initiated in Lebanon in 1998, AFP surveillance aims to detect any polio case for timely response and to document the polio-free status of the country.

Objectives: The objective is to describe the findings of AFP surveillance in Lebanon.

Methods: AFP is among immediately notifiable communicable diseases. The case definition includes any AFP under 15 years whatever the diagnosis is, or any suspected polio by a clinician whatever the age is. Cases are detected via passive surveillance, active surveillance, and event-based surveillance. Once reported, the case is investigated with data collection, stool collection (if possible 2 samples within 14 days from paralysis onset), and follow-up at 60 days. Samples are referred to a WHO-accredited polio laboratory for virological culture. If no or late specimens and residual weakness or loss for follow-up or death, cases are referred to the National Expert Group. Based on the findings, cases are classified as polio-confirmed, polio-compatible, or polio-discarded. On a weekly basis, the national line list is shared with the WHO. A weekly bulletin is generated and posted on the MOPH website.

Results: In 2022, 57 cases were detected. All were investigated and classified as polio-discarded. The non-polio AFP rate under 15y reached 3.7/100000 at the national level. At the provincial level, it was above 2 in all provinces, except 1 province (Nabatieh with 1.6).
The proportion of adequate stool collection reached 84% at the national level. By province, it ranged from 50 to 75% in 4 provinces, and 87%-100% in the 4 provinces. The common final diagnoses were: meningitis and meningoencephalitis (19%), Guillain Barre Syndrome (18%), and myositis (18%).

Conclusions: Lebanon has been declared polio-free since 2002. A decrease in vaccination coverage has been noted since the COVID-19 pandemic. There is a need to maintain high performance for AFP surveillance to timely detect any polio case.

Keywords: Acute Flaccid Paralysis Surveillance, Polio, Lebanon

POLIO AND AFP SURVEILLANCE

Title: Characterizing the Implementation of Environmental Surveillance System for Poliovirus in Yemen (2021-2022)

Theme: Polio and AFP Surveillance
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Country: Yemen

Background: To eliminate polio, Environmental Surveillance (ES) is becoming more crucial since it frequently detects the virus circulation before paralytic cases are documented. Yemen is facing twin outbreaks of Circulating Vaccine Derived Polioviruses (cVDPV1 and cVDPV2). During these recent outbreaks, ES was implemented.

Objectives: To describe the dynamic process of establishing and monitoring ES sites for polioviruses (PVs) and highlight the current challenges facing ES in Yemen.

Methods: A retrospective study based on secondary data was conducted from July 2021 to December 2022. Only three sites located in three governorates (Sana'a, Al Hodiedah, and Aden) were selected for sewage sample collection. Bag Mediated Filtration System (BMFS) was selected for sewage sample collection. Samples were sent to a referral lab for characterization and viral identification.

Results: A total of 47 water samples were collected. Only 29/47 (62 %) were screened by Polio rRT-PCR ITD. 24/29(83%) samples were classified as cVDP2. Sabin polioviruses were detected in most of the samples 21/29(72%), (type 1=7, type 3=14). No wild poliovirus (WPV) was detected among the isolates. Non-polio enterovirus (NPEV) was identified only in 1/29 (3%). The viral detection rate of enteroviruses in all sample collections screened by rRT-PCR ITD was 28/29(97%). Delaying in sending samples and receiving the results was the biggest challenge faced.

Conclusions: ES has been effectively employed to track the spread of enteroviruses and NPEV. Our results showed the continuous circulation of VDPV2 in the analyzed areas. No WPV isolated by ES was in line with the Acute Flaccid Paralysis surveillance findings. BMFS had approved that it can be utilized successfully for ES. Switching the reference laboratory to an alternative lab, expanding ES in high-risk areas where populations are at particular risk of PVs, and reinforcing polio vaccination coverage are highly recommended.

Keywords: Environmental Surveillance, Poliovirus, Yemen

POLIO AND AFP SURVEILLANCE

Title: Knowledge, Attitude, and Practice of Polio Vaccine Among Caregivers of Under-five Children in Five Provinces of Afghanistan(2022)

Theme: Polio and AFP Surveillance
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Country: Afghanistan

Background: Poliomyelitis is a disabling, life-threatening, and highly infectious disease; however, it is preventable by vaccines. Knowledge, attitude, and practice of caregivers directly affect the spread of the polio virus and the uptake of the polio vaccine.

Objectives: This survey aimed to assess knowledge, attitude, and practice towards polio vaccines in five provinces in Afghanistan.

Methods: A cross-sectional descriptive study was conducted among 2,134 caregivers of children less than five years old in Kabul, Kunduz, Ghazni, Takhar, and Baghlan provinces during November and December 2022. Data on socio-demographic characteristics, knowledge, attitude, practice, rumors, and barriers were collected through a structured questionnaire. Quality and confidentiality of data were ensured. Descriptive analysis and the chi-square test were performed to show the association between dependent and independent variables using Epi Info V.7.2.1 and MS Excel.

Results: A total of 2,134 caregivers responded to the questionnaires among which 1214 (57%) were males and 920 (43%) were females. The majority of caregivers 1679 (79%) knew about the polio virus and 1723 (81%) had knowledge of the polio vaccine. In this survey, 1914 (90%) and 1684 (79%) caregivers agreed on the usefulness and safety of polio vaccines. Of all caregivers, 2030 (95%) had vaccinated their children against polio among which children of 1505 (74.14%) caregivers had received more than three doses. Fear of Adverse Effects Following Immunization (AEFI) 441 (21%), religious beliefs 405 (19%) and being busy 220 (10.31%) were among the most reported barriers for polio vaccination. Knowledge of polio vaccine and vaccinating the child against polio were significantly associated (OR=8.87 [5.84-13.47]).

Conclusions: Caregivers had high levels of knowledge, positive attitudes, and good practice toward the polio vaccine. Fear of AEFI and religious beliefs were the major barriers to polio immunization. Special attention should be given to educating people and raising awareness about polio vaccines to enhance their acceptability of polio vaccines.

Keywords: Knowledge, Attitude, Practice, Polio Vaccine, Caregivers, Afghanistan

PUBLIC HEALTH IN EMERGENCIES AND MASS GATHERINGS

Title: Assessment of Social Media-Driven Infodemic Prevalence During COVID-19 Emergency Response in Islamabad, Pakistan (2022-2023)

Theme: Public Health in Emergencies and Mass Gatherings
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Country: Pakistan

Background: During public health emergencies, people often face challenges in the rapid spread and proliferation of infodemics, which is often conflicting and misleading in informed decisions. Emergency response is significantly affected by the infodemic, as disinformation, misinformation, and rumors hamper accurate proper risk communication activities as required under IHR(2005). Pakistan faced many hurdles in the management of the infodemic during the COVID-19 pandemic.

Objectives: To identify and assess the prevalence of social media-driven infodemics during the COVID-19 emergency, with a specific focus on the use of social media platforms as sources of disinformation and misinformation.

Methods: Open access non-encrypted social media platforms like Facebook, YouTube, TikTok, and Instagram were included in the study. Top followed and liked "COVID-19 prevention" related posts and videos in both English and Urdu languages from June 2022 to May 2023 were analyzed and an open inductive content analysis was conducted. A total of 673 content items having >10,000 views or likes were analyzed. The message and language of the items were compared with established benchmarks in the national guidelines for COVID-19 prevention and control. Frequencies were calculated and Chi-square was computed at p-value <0.05.

Results: Out of 673 content items about COVID-19 prevention, a total of 321(48%) were misleading and were not aligned with standardized preventive guidelines. The proportion of false information was high in Urdu content 137(57%) as compared with English 184(43%). Out of misleading content items, the prevalence of misinformation was 78(24%) followed by rumors 75(23%), disinformation 55(17%), and mal-information 29(09%). The chi-square analysis revealed that TikTok (X2= 71.8, p=<0.05) and Facebook (X2= 9.5, p=<0.05) were significantly associated with the spread of misinformation as compared to other social media platforms.

Conclusions: TikTok and Facebook proliferated infodemics during the COVID-19 emergency. Policies and guidelines should be implemented to conduct infodemic prevalence estimation during emergencies to mitigate its impact, enabling targeted infodemic control interventions.

Keywords: Infodemic, Emergency, Public Health, Social Media, Response, Misinformation

PUBLIC HEALTH IN EMERGENCIES AND MASS GATHERINGS

Title: Biomass Cooking Fuel and Acute Respiratory Infection Mortality Among Children Under Five Years of Age in Sana'a, Yemen: A Matched Case-Control Study

Theme: Public Health in Emergencies and Mass Gatherings
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Country: Yemen

Background: Exposure to biomass cooking fuel threatens young children's lives in developing countries. Different sectors in Yemen, including socioeconomic sectors, were affected by the current conflict. Consequently, the proportion of households using biomass fuel for cooking purposes has increased, which in turn affects the lives of children.

Objectives: The study aimed to identify the effect of biomass cooking fuel and other potential risk factors on under-five children mortality due to acute respiratory infection (ARI).

Methods: A matched case-control study was conducted in Sana'a City. A sample size of 103 cases and 206 controls was calculated. Children who were admitted to Al-Sabeen, Al-Thwara, or Al-Jamhory hospitals in Sana'a City with ARI and died at the hospitals for this reason were considered cases. The two healthy children were age-matched, and the neighborhood was the control group. Conditional logistic regression was used to account for the matching and control for the potential confounders. Adjusted odds ratio (AOR) and 95% confidence intervals (CI) were calculated.

Results: The 46.6% of households in cases that used biomass fuel inside the house was higher than the 17.5% of controls. Utilizing biomass fuel for cooking was significantly associated with child mortality due to ARI (AOR 2.67, 95% CI 1.21-5.86) with families living in rented houses (AOR 2.65, 95% CI 1.17-6.02), smoking mothers (AOR 2.51, 95% CI 1.23-5.11), and those who had not been fully or had only partially vaccinated (AOR 5.63, 95% CI, 2.43-13.04) were at higher risk of death due to ARI. Other factors such as age, education and occupation of the mother, father's education, sex of child, and non-breastfeeding were not associated with ARI mortality in children.

Conclusions: Based on the findings of this study, urgent interventions that ensure the availability and accessibility of clean energy to Yemeni families and the availability of vaccines are needed to save Yemeni children's lives.

Keywords: Biomass Fuel, Acute Respiratory Infection, Mortality, Chilen, Yemen

PUBLIC HEALTH IN EMERGENCIES AND MASS GATHERINGS

Title: Capacity Assessment of the Laboratory System of the Conflict-Affected Province of Pakistan Regarding COVID-19 Testing at End of Pandemic and Assessment of the Preparedness for Future Outbreaks

Theme: Public Health in Emergencies and Mass Gatherings
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Country: Pakistan

Background: Conflict-affected regions face immense challenges in maintaining functional healthcare systems, including laboratory testing capacities during health emergencies.

Objectives: To assess the COVID-19 testing capacity of laboratories of "Khyber Pakhtunkhwa (KPK)," the conflict-affected province of Pakistan, and to assess its preparedness for future outbreaks.

Methods: This evaluation study of a nine-month duration was conducted in all 12 laboratories performing COVID-19 testing in KPK province of Pakistan in 2022. A mixed-method approach was employed, including qualitative interviews with laboratory personnel, healthcare professionals, and policymakers along with document reviews and on-site observations in laboratories. Data was collected using a validated questionnaire developed by the WHO "Laboratory Assessment Tool (LAT) for laboratories implementing SARS-CoV-2 testing." There was a self-assessment of laboratories followed by on-site visits by 3 team members to verify the responses and data recording on a separate copy of LAT.

Results: Regarding capacity for COVID-19 testing, laboratories were overall strong (score ≥85%) in "data and information management". The score was good (score ≥ 70%) in "Specimen Handling and Transport," "Consumables and Reagents,"' and "Laboratory Testing Performance,". Laboratories were weak (score 50-69%) in "Biorisk Management," "Human Resources," "Public Health Functions," and "Document Control." Laboratories were very weak (score <50%) in "Organization and Management" and "equipment management.' Regarding the readiness for future outbreaks, the tiered public health laboratory network is not established in the province. The trained workforce is limited due to the exodus of skilled personnel, limited training opportunities, and security risks in some areas. There are few budgetary allocations in laboratories' budgets for procurement of consumables and supplies for testing of many infectious diseases with outbreak potential.

Conclusions: The COVID-19 testing capacity of diagnostic laboratories of KPK was good at the end of the pandemic. However, the system is not ready to respond to future outbreaks and the focus must be on the development of tiered public health laboratory networks, workforce development, and enhanced budgetary allocation.

Keywords: Pandemic, Laboratories, Testing Capacity, Preparedness

PUBLIC HEALTH IN EMERGENCIES AND MASS GATHERINGS

Title: Evaluation of the Preparedness and Response of Food Safety Activities During Qatar FIFA World Cup 2022 Mass Gathering

Theme: Public Health in Emergencies and Mass Gatherings
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Country: Qatar

Background: The Food Safety Department (FSD) is responsible for supporting the development of enhanced food safety measures. This is part of the preparation for the Qatar FIFA World Cup 2020 (FWC 2022) mass gathering. Multiplication of venues for food and beverages took place with millions visiting Qatar for this event. Food safety control measures were established to protect public health and effectively respond to emergencies.

Objectives: To evaluate FSD's FWC 2022 preparedness and response activities.

Methods: Descriptive study utilizing data from FSD's FWC 2022 task force reports, including food poisoning investigation outbreaks, site pre-assessments, risk-based inspections, laboratory results, border alerts, food incidents, and water safety reports.

Results: A steering committee was developed to undertake and follow up on preparedness activities, strengthen workforce capacity, and support coordination. The food defense system was enhanced among all hotels, hygiene managers, and security force staff. The study found an increase in the compliance level of official food establishment sites. A large percentage of hotels demonstrated a good compliance level. FSD conducted three series of food safety incident simulations. Imported food control measures were strengthened based on the level of risk of food groups across all borders. A public hotline has been launched. 340 food and water samples were collected for evaluation prior to the tournament. During the tournament, 3737 inspection visits were conducted across all sites. The food laboratory received 25972 food samples in total and approximately 250,000 tests were performed. Only 31 samples of the 7460 Ministry of Public Health samples were contaminated. Twelve food poisoning outbreaks were reported and investigated.

Conclusions: The government and partners were committed to implementing food safety control measures and improving FS emergencies. Efforts led to the successful organization of FWC 2022 in Qatar.

Keywords: Food Safety Control, Food Poising Outbreaks, FIFA World Cup

PUBLIC HEALTH IN EMERGENCIES AND MASS GATHERINGS

Title: Pattern of Referral of Sick Omani Pilgrims from Omani Medical Mission During Hajj 2019

Theme: Public Health in Emergencies and Mass Gatherings
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Country: Oman

Background: Annually, in the month of Dhul Hijjah, over 2 million Muslims travel to Saudi Arabia to perform Hajj. Hajj is the biggest mass gathering globally, which creates a significant influence on pilgrims' health. The Omani medical mission is the official delegation from the Omani government to Saudi Arabia to serve the Omani pilgrims regarding their health issues.

Objectives: This study investigates the referral rate and pattern of diseases among pilgrims referred by the Omani medical mission during Hajj 1440.

Methods: We conducted a cross-sectional study at the Omani Medical missions in Makkah, Madinah, Mina, and Arafat. Data was collected via a predesigned form. All Omani pilgrims presenting to the mission who were referred to local hospitals were included.

Results: The total number of cases was 5000, of which 106 (2.1%) were referred to local hospitals (21.2 per 1000 pilgrims). The most common causes of referral were cardiovascular diseases (23.6%) followed by gastrointestinal disease (17.9%) and trauma (16.9%). Males comprised 60.1%. Their mean age was 47.3 years (SD ±11.27), with the highest referrals in the 51-60 years age group (30%). Over half (55.7%) had co-morbidities. Patients' mean time to reach the clinic was 8.87 min (SD ±6.41), with 65% arriving in 5 min or less. The mean time needed to reach the hospital by ambulance was 11.39 min (SD ±6.6), with 36% arriving within 5 min. Of the referrals, 42% were admitted to hospital. Hospitalization was significantly higher among patients with chest pain (P-value < 0.0057), diabetics (P-value < 0.0001), and patients with heart disease (P-value = 0.013).

Conclusions: The most common causes for referral of pilgrims from the Omani Medical Mission were cardiovascular diseases, gastrointestinal disease, and trauma. This information should assist the Omani government in planning their medical services during the Hajj season in future years.

Keywords: Hajj, Referral, Oman

OTHERS

Title: Assessment of Risk Factors Associated with Pollen Allergy in Islamabad, Pakistan (March 2022)

Theme: Others
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Country: Pakistan

Background: Residents of Islamabad face serious health problems at the beginning of spring due to high pollen levels. Some experience mild symptoms while others suffer severe allergies affecting daily activities at work, school, and home.

Objectives: To determine possible risk factors and recommend control measures.

Methods: A case-control study was conducted from March to July 2022 at the community center, in Islamabad. A case was defined as any resident of Islamabad presenting with two or more of the following signs/symptoms: red/watery eyes, runny/blocked nose, sneezing, cough, breathlessness, and itching with positive pollen skin prick tests from 20th-30th March 2022. An equal number of age and sex-matched healthy controls were recruited from the same neighborhood. Means, attack rates, and adjusted odds ratios were computed.

Results: A total of 558 cases were identified with a median age of 36.5 years (range 2-78 years). The overall attack rate was 0.27% with most affected 45-54 years age group (AR=0.78%). Males were predominantly involved (n=381, 68%). Only 26.9% (n=150) cases had a history of receiving pollen allergy vaccine. Following vaccination, symptoms were cured in 2% (n=3), mildly improved in 40% (n=60) and ineffective in 58% (n=87) cases. Of total cases, 395 (70.8%) had cannabis (adj. OR 2.81, CI 2.2-3.7) and 316 (56.6 %) had paper mulberry trees around their houses (adj. OR 2.94, CI 2.3-3.8). Additionally, 224 (40.6%) had a positive family history of pollen allergy (adj. OR 1.65, CI 1.25-2.17) and 228 (40.9%) had a history of recurrent respiratory tract infections (adj. OR 1.51, CI 1.15-1.97).

Conclusions: The presence of paper mulberry and cannabis around houses was the most probable cause of the rise in pollen allergy cases. Additionally, a family history of pollen allergy and recurrent respiratory tract infections were also associated with higher risk. Based on the study's findings, the Health department recommended city authorities cut paper mulberry trees and initiate community awareness through health education and advocacy on the use of preventive measures against pollen allergy.

Keywords: Pollen Allergy, Paper Mulberry, Cannabis, Islamabad, 2022

OTHERS

Title: Human Rabies Exposures and Post-Exposure Prophylaxis in Monastir, Tunisia (2019-2022)

Theme: Others
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Country: Tunisia

Background: Rabies continues to be one of the most important viral diseases and remains a significant threat across the globe particularly in Africa and Asia. Rabies is a public health concern in Tunisia. However, its spread is poorly understood.

Objectives: Our study aimed to describe the epidemiological profile of human exposure to animals and post-exposure prophylaxis (PEP) practices in the governorate of Monastir (Tunisia) from 2019 to 2022.

Methods: We carried out a descriptive study using surveillance data from the Monastir governorate in central Tunisia. All humans exposed to animals, residents in Monastir Governorate, and cases declared by the Regional Directorate of Primary Health Care (RDPH) from January 1, 2019 to December 31, 2022 were included in our study. Data were entered, cleaned, and analyzed using Excel.

Results: During the studied 4-year period, 7789 cases of human exposure to animals were reported with an annual average of 1969 ±207. The annual incidence rate of exposure to animal bites was 324 per 100,000 population. The sex-ratio was 2.07 and almost one third of exposed humans were aged less than 15 years old. The most listed offending animals were dogs (65.2%) followed by cats (24.4%). The number of exposures by unvaccinated dogs ($r=0.94$, $p<0.001$) increased significantly. PEP was applied among 99% (n=7772) of declared exposures. Among them, 2.5% (n=202) did not complete the PEP recommended protocol. During our study period, rabies was confirmed in 39 animals. Two fatal human rabies cases were declared respectively in 2021 and 2022.

Conclusions: Rabies remains a worrying health problem in Tunisia with a high percentage reported among youth and males. Targeting children and adolescents through education and information campaigns about preventive measures and mass dog vaccination are the key to ending this scourge.

Keywords: Rabies, Dogs, Prevention, Epidemiology, Tunisia

OTHERS

Title: Attitudes and Practices of expired medication disposal in Syrian Households, 2022

Theme: Others
Authors: Sham Alhousiki (alhousikis@gmail.com), Haya Alhousiki (alhousikihaya@gmail.com), Samar Alzeer (samar.alzeer@gmail.com)
Country: Syria

Background: Unused medication disposal through environmentally unsafe routes is a global issue. In Syria, medication hoarding practices have increased during the war and COVID-19 pandemic, accompanied by insufficient guides and policies on household disposal practices for expired medication.

Objectives: The study objective was to determine the most unused pharmaceutical products in household settings and what are the disposal attitudes and practices for expired medication.

Methods: It is a cross-sectional descriptive study targeting the Syrian community from April 6, 2022 to May 28, 2022. Out of the 1116 respondents, 1031 met the inclusion criteria of being older than 18 residing inside the Syrian Arab Republic, and giving their full informed consent for participation. The online survey was based on two pre-validated structured questionnaires by (Gupta et al., 2019) and (Alnahas et al., 2020). Data were analyzed using descriptive analysis methods.

Results: Most respondents indicated they had more than ten unused medications in their houses: 230 (25%) had over twenty and 282 (28%) had eleven to twenty unutilized pharmaceutical products. The most common unutilized medications were topical products, vitamins and syrups, and painkillers, with percentages of (48%, 43%, and 40%) respectively. Regarding the disposal methods of expired medication: (83%) disposed of drugs in the bin. However, (11%) kept using the drugs despite expiration. The most common reason for having these expired drugs was discontinuing medication use due to disease regression (44%). Neither the drugs' price (85%) nor the source (77%) -whether it was of national production or imported from a foreign country- affected the participants' decision to dispose of expired medication.

Conclusions: Unsafe disposal practices are ubiquitous in Syrian society despite economic, educational, and geographical factors. Therefore, increasing population knowledge and setting new policies are strongly recommended.

Keywords: Expired Medication, Unused Medication, Unutilized Pharmaceutical Products, Drug Disposal Practices, Online Survey, Syria.

OTHERS

Title: Anxiety and Depression and its Effects on Academic Performance and Self-esteem Among a Sample of Iraqi High School Students (2023)

Theme: Others
Authors: Arwa Ali (arwaabid2013@gmail.com)
Country: Iraq

Background: Adolescence is a transitional phase between ages 10-19 generally considered a phase without significant health problems, but around 20% of adolescents experience mental health issues, particularly depression and anxiety. These conditions have a distinct impact on individuals, affecting their health, and quality of life, and often manifesting at an early age. Depression and anxiety are prevalent public health concerns with limited interventions. This study aimed to determine the prevalence of anxiety and depression among Iraqi high school students in 2022 and assess its effect on academic performance and self-esteem.

Objectives: To estimate the prevalence of anxiety and depression among adolescents and its effect on their academic performance and self-esteem.

Methods: A nationwide cross-sectional study was conducted from November 2022 to April 2023 using a multi-stage random cluster sampling technique. All 19 governorates were included, with 20% of health sectors and 10% of intermediate and secondary schools within each sector selected. Simple random sampling was used to allocate 20% of the classes in each school, and all students in those classes were included. Only students aged 10-19 years were considered. Data were collected using the Hospital Anxiety and Depression Scale (HADS) and the Rosenberg self-esteem scale. Data was loaded and analyzed into SPSS version (24).

Results: A total of 5,307 high school students participated in the survey, with 52.6% being male. The survey results revealed that among the participants, 50.9% had normal depression scores, 29.6% had borderline depression scores, and 19.5% had abnormal depression scores. Regarding anxiety, 35.3% had normal anxiety scores, 23.8% had borderline anxiety scores, and 40.9% had abnormal anxiety scores. In terms of self-esteem, 81.1% of students had normal scores, 13.6% had low self-esteem scores, and 5.4% had high self-esteem scores.

Conclusions: The study highlights that depression and anxiety significantly impact academic performance and self-esteem among students. These mental health conditions can lead to difficulties in concentration, memory problems, and reduced motivation, resulting in lower grades and decreased academic achievement. In addition, depression and anxiety affect self-esteem, leading students to doubt their abilities and hold negative perceptions of themselves. These negative self-perceptions further contribute to academic struggles, establishing a cycle of challenges. Early intervention, support, and the creation of a nurturing environment are essential to address these issues, promote positive mental health, facilitate academic success, and improve self-esteem among students.

Keywords: Anxiety, Self-Esteem, Depression

OTHERS

Title: Epidemiological Pattern of Suicide CASES in Diyala Province, Iraq (2020-2021)

Theme: Others
Authors: Marwah Qader (marwakader327@gmail.com)
Country: Iraq

Background: Suicide is the action of ending one's life while a suicide attempt is self-harm that does not result in death but has at least some underlying intention to end one's life. Globally, there are not many publications that attempt to analyze statistics on completed suicides. The main reasons for this are most likely inadequacies in data availability and dependability. In Iraq in 2019, over 590 people died by suicide, and another 1112 attempted suicide. During 2020-2021, 43 deaths due to suicide were reported to the Forensic Department in Diyala province.

Objectives: This study aims to describe the pattern of distribution of cases epidemiologically for the years 2021–2022.

Methods: A cross-sectional descriptive study was conducted by reviewing 43 case forms reported monthly for two years. The data was gathered from the Non-Communicable Disease Section and statistically analyzed using Microsoft Excel version 2019.

Results: The results showed that 53% of suicide victims were female and 70% resided in rural areas: the majority of the women were housewives 73% while 35% of men were wage earners. Victims among the age group (20-29) were 37% of cases and 51% were primary school graduates. In the month before the attempt, 23% of victims had anxiety, while 49% of victims reported having no problems at all. Hanging was the method of choice for this action, which was used by 58% of victims.

Conclusions: Suicide was most common among young people, most of whom had only a basic education, and hanging was the most common method of suicide in Diyala province.

Keywords: Suicide, Diyala, Hanging, Young

OTHERS

Title: Healthy Diet Among Jordanian Adults

Theme: Others
Authors: Bisan Hiresh (bisanhiresh@yahoo.com)
Country: Jordan

Background: Diet plays a crucial role in maintaining good health. However, many individuals lack awareness about healthy dietary habits, leading to suboptimal lifestyle choices.

Objectives: This study aimed to assess the level of awareness regarding healthy diet habits among Jordanian adults.

Methods: The study involved a secondary analysis of cross-sectional data collected from Jordan's 2019 National Stepwise Survey (STEPs) for Non-communicable Diseases Risk Factors. The survey population included Jordanian and Syrian adults of both genders, aged 18 to 69 years, residing in Jordan. The questionnaire covered socio-demographic characteristics, salt consumption, and daily fruit and vegetable consumption.

Results: A total of 2,910 Jordanians participated in the study, 2,203 (39%) were males and 3,510 (61%) were females. Two-thirds of the sample were in the age range of 18-44 years. A low percentage of both males and females reported reading the sodium content on food labels (17% vs. 21%) and purchasing low-sodium salt (13% vs. 15%). However, a high percentage of both males and females recognized the importance of reducing salt intake in their diet (77.1%) and believed that excessive salt consumption could lead to serious health problems. Other measures taken to control salt intake included avoiding foods prepared outside the home (33.6%), using spices instead of salt (33.3%), checking salt content on food labels (19.1%), and opting for low-sodium alternatives (14.1%). Overall, women exhibited healthier dietary habits compared to men.

Conclusions: The study revealed that many Jordanian adults lack awareness of unhealthy dietary practices. There is a need to reduce the consumption of unhealthy foods, such as red meat and sugar, while promoting the consumption of healthy foods, including fruits, vegetables, and nuts. These findings highlight the importance of implementing multi-behavioral programs and public health interventions, along with interprofessional collaborations and primary health care team models to enhance awareness and promote healthy dietary habits among the population.

Keywords: Healthy Diet, Habits, Consumption, Non-communicable Diseases, Adults, Jordan

OTHERS

Title: Knowledge, Attitude, and Preventive Practices Regarding Dengue Fever Among Sudanese Citizens and Associated Factors in 2021 in Khartoum State, Sudan

Theme: Others
Authors: Ibrahim Adel (barhom1029@gmail.com)
Country: Sudan

Background: Dengue fever is a mosquito-borne viral disease that is considered one of the world's emerging infectious diseases. According to the World Health Organization (WHO), 40 % of the world's population lives in these areas that are classified to be at high risk for dengue infections. Sudan is one of the countries with a continuous risk of developing dengue fever outbreaks. Adequate knowledge, positive attitudes, and correct practices are crucial to preventing such potential outbreaks.

Objectives: To assess the knowledge, attitude, and practices regarding dengue fever among Sudanese citizens and associated factors in Khartoum, Sudan.

Methods: A cross-sectional, community-based survey was conducted in August 2021 including both genders, aged 18 years and above, and living in Khartoum, with the exclusion of healthcare workers. Data were collected using a pretested questionnaire and were analyzed using the Statistical Package for Social Science (SPSS).

Results: Among the survey respondents (n=532), about (7%) self-reported that they had at least one dengue infection, while (19.7%) had a history of infection in at least one family member or a friend. The overall knowledge score based on correctly answering 20 Dengue-related questions was 10.42 (SD: 5.2, range: 0-20). Knowledge scores were significantly associated with occupation, marital status, source of information regarding dengue fever, history of personal infection, and having a family or friend as well as the previous infection ($P<0.05$). In terms of attitude, (70%) agreed that dengue fever was a serious illness in Sudan, while (40.6%) of participants did not believe that health authorities were doing their best to prevent the spreading of dengue. Use of preventive practices varied in the study population with about (94%) using fans and (93.4%) covering their water containers.

Conclusions: This study revealed that participants had an intermediate level of knowledge, positive attitude, and appropriate practices. The study recommends health authorities create educational programs about dengue fever.

Keywords: Knowledge, Attitude, Practice, Dengue Fever, Sudan

POSTER PRESENTATIONS

Title: Determinants of Treatment Delay in Childhood Tuberculosis in Bangladesh: Evidence from National Tuberculosis Program's Surveillance Data (2017-2022)

Theme: Poster
Authors: Tanvir Ahmed (tanvirahmed5991@gmail.com), Imran Hossain Monju (imranmonju2008@gmail.com), Rabeya Sultana (rabeya2006@gmail.com), Tahmina Shirin (tahminashirin14@gmail.com), Quazi Ahmed Zaki (qazaki@gmail.com)
Country: Bangladesh

Background: As per the WHO estimation, 11% of all diagnosed tuberculosis (TB) patients are children. Bangladesh reports 4.2%, thus 20,000 children with TB remain missing. The burden of childhood tuberculosis (child-TB) and determinants of treatment delay are vital to know while formulating policy and assessing the performance of control programs.

Objectives: We aimed to determine the burden of ug-sensitive child TB and evaluate treatment delay and its determinants using surveillance data from the National Tuberculosis Control Program (NTP) in Bangladesh.

Methods: Chittagong district was conveniently selected. We extracted data for the years 2017-22 from the electronic reporting system. We used the WHO definition of treatment delay as a delay from diagnosis to treatment initiation. We defined longer treatment delays as more than seven days. Patients and outcomes were defined and classified following the guidelines of NTP. Spatial analysis was performed. Logistic regression was done to establish the determinants.

Results: The total number of patients was 3224. The incidence rate was 158 per 100,000 children. Only 5.7% and 7% of patients belonged to the 0-4- and 5-9-years age categories respectively. Female patients were predominant (59%). Satisfactory outcome was reported for 98.5% of patients. Case detection was 27% less in 2020 than in 2019. Then, a 175% increase in 2021 occurred. The median treatment delay was 1 day, range (0-388) days with longer delays found in 15% of patients. Higher odds of experiencing treatment delay were found in urban-residing patients (OR=2.27;95% CI: 1.79-2.87), previously treated patients (OR=3.47;95% CI: 1.30-9.26), extra-pulmonary patients (OR=1.4;95% CI: 1.03-1.89) and clinically diagnosed patients (OR=10.02;95% CI: 6.77-14.83). Gene X-pert and microscopy were used to diagnose 17% and 44% of patients respectively. Southern sub-districts were more affected.

Conclusions: Considering the infectivity of tuberculosis, a significant proportion of child-TB patients experienced treatment delay. We recommend increasing awareness among patients' parents about the benefits of early treatment initiation and strengthening monitoring activities to decrease treatment delay.

Keywords: NTP, Surveillance, Child-TB, Delay, Determinants, District

POSTER PRESENTATIONS

Title: Prevalence, Factors Influencing Post-COVID Conditions Among Patients at Several Public Health Hospitals, Alexandria, Egypt 2022-2023

Theme: Poster
Authors: Rasha Ashmawy (mri.rasha.m.informatics19@alexu.edu.eg), Yousra El Maradny (hiph.ymaradny@alexu.edu.eg), Amira Tahio (atahio@yahoo.com), Salma Afifi (afifisalma1@gmail.com), Manal Fahim (fahimmanal@yahoo.com), Sahar Samy (sahar_mohp@yahoo.com), Hala BahaaEldin (halaaabahaa@gmail.com), Nahla Gaber (ngaber.com.dng@gmail.com), Amr Kandeel (kandeelamr@yahoo.com), Ibrahim Abdelwahab (Ibrahim.abdelwahab@pua.edu.eg)
Country: Egypt

Background: Post-COVID conditions (PCC) characterized by persistent symptoms after acute infection, is an emerging chronic illness potentially affecting millions of people. Approximately 10–20% of people infected by SARS-CoV-2 may develop symptoms of PCC. Most PCC patients experience mild symptoms, and a few patients report more severe manifestations.

Objectives: This multicenter study was performed in three governmental hospitals to estimate the prevalence of PCC and investigate its risk factors.

Methods: All COVID-19-confirmed patients >18 years seen between June 2022-February 2023 as well as their epidemiologically connected household contacts were contacted, , by telephone. PCC was defined as any COVID-19 patient with persistent symptoms ≥8 weeks after acute infection. Patients were interviewed using a standardized questionnaire that included patients' demographics, clinical symptoms, and PCC risk factors. Descriptive data analysis was performed to describe patients' characteristics, and patients with PCC were compared to other patients using logistic regression to identify PCC risk factors with <0.05 significance.

Results: Overall 1,546 patients enrolled: their mean age was 39.7±15.9 years, 54.0% were females, and 13.9% had comorbidities. Of these patients, 52.6% were seen at the hospitals, 26.7% hospital admitted, and 0.5% ICU admitted. The overall PCC prevalence was 49.2%, and 38.4% of patients had symptoms persisting >180 days. Symptoms included breathlessness 46.3%, fatigability 17.3%, and psychological disturbances 8.1%. The risk of long PCC symptoms was higher among females, those who did not receive treatment, and those who have respiratory comorbidity [ORs and 95% Cis =1.2, (1.1-1.4) and 1.7, (1.1-2.8) and 1.9, (1.1-3.4)].

Conclusions: The study identified a high rate of PCC and long-symptom persistence among COVID-19 patients in three hospitals, especially among females with respiratory comorbidities and untreated patients. Patients with PCC risk factors should be counseled about their possible occurrence. Research is required to better identify PCC risk factors to be used for developing effective rehabilitation and psychiatric care programs.

Keywords: Prevalence, Post-COVID conditions, Long COVID, epidemiological factors, social factors.

POSTER PRESENTATIONS

Title: Evaluation of Event-Based Surveillance System During the COVID-19 Pandemic in Cairo, Egypt (2022)

Theme: Poster
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Country: Egypt

Background: Event-Based Surveillance (EBS) is an electronic early warning system that was introduced in Egypt in 2015 to help rapid capture of information about events of potential risk to public health. The system is implemented at central, governorate, and district levels to cover the whole country.

Objectives: Evaluation of the system is needed to determine whether it meets its objectives and makes effective use of resources and to assess its relevance, effectiveness, and the impact of its activities. This study aims to evaluate the system's performance in the Cairo governorate during the COVID-19 pandemic.

Methods: Evaluation was conducted using the USCDC guidelines. Quantitative attributes were evaluated using surveillance data for January-October 2022, including data completeness, timeliness of response to signals, and positive predictive value (PPV) defined as successfully identifying real health events among signals. Data validity was checked by comparing electronic data with paper records. Qualitative attributes, including simplicity, flexibility, usefulness, acceptability, and stability were assessed by interviewing surveillance teams from the Cairo governorate at all levels using a semi-structured questionnaire. Descriptive data analysis was conducted using Epi Info.

Results: Overall, 24 team members were interviewed: their mean age was 35±12, 70% were males, 92% were epidemiologists, and 8% were sanitarians. The 24 members mentioned that surveillance was highly simple and useful. Acceptability, flexibility, and stability were rated at 82%, 78%, and 77% respectively, with the high workload, electricity instability, and lack of motivation implicated. Overall, 90% of events were responded to within 24 hours, data completeness was 86%, PPV was 70%, and data validity was 95%.

Conclusions: EBS in Cairo performed well in capturing and responding to public health events; however, timeliness and data quality should be improved. To maximize system usefulness, acceptability, and stability should be improved by reducing staff workload, increasing motivation, and maintaining electricity and internet supplies.

Keywords: Public Health Surveillance, Evaluation Study, Early Warning

POSTER PRESENTATIONS

Title: Exploratory Investigation of Shigellosis Outbreak in Ben Arous Governorate of Great Tunis, Tunisia (December 2022)

Theme: Poster
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Country: Tunisia

Background: On November 5, 2022, a national outbreak of Shigella Sonnei (S.Sonnei) was declared. As of December 13, 2022, confirmed cases have been notified in Tunisia, including one death. In Ben Arous governorate (Great Tunis), one of the first affected governorates, eight index cases were notified.

Objectives: To investigate the shigellosis outbreak in Ben Arous governorate to identify the source of contamination and to implement appropriate control and preventive measures.

Methods: We conducted an exploratory case-control study in the Ben Arous governorate in December 2022. We defined cases as the household members of the index case and control as the asymptomatic neighborhood. The ratio control/ case=4. We reported the frequency of exposures among cases and controls. Water sampling was performed for environmental investigation.

Results: The response proportion was 3/8 among cases and 7/12 among controls. The average number of household members was 6 among cases and 5 among controls. Three households out of ten were located in rural areas. All households were recorded to the National Company of Water Exploitation and Distribution and the National Sanitation Office. All cases reported consuming softened water vs. two controls. None of the cases reported diaper change in the household vs. two controls. Septic tank sanitation was not satisfactory for one case and two controls (rural areas). Six samples of consumed water were taken and all of them were negative for S.Sonnei, three out of six were positive for total coliforms (softened water).

Conclusions: Consuming unclear water was the most probable source of contamination. We recommend consuming safe water and improving hygiene practices among households to contain the outbreak and avoid further episodes.

Keywords: Outbreak, Case-Control Study, Shigellosis, Shigella.Sonnei, Ben Arous, Tunisia

POSTER PRESENTATIONS

Title: Investigation of a Cholera Outbreak in Lebanon After Three Decades of Being CholeraFree (2022)

Theme: Poster
Authors: Abass Jouny (jounyabass@gmail.com), Nada Ghosn (esumohleb@gmail.com), Maryo Baaklini (maryobaakliny@gmail.com)
Country: Lebanon

Background: On October 5, 2022, Lebanon confirmed its first case of cholera in a Syrian refugee in the context of a cholera outbreak in Syria. This was the first cholera case recorded in Lebanon since 1993.

Objectives: An outbreak investigation was conducted to characterize cases, identify the source, and recommend containment measures.

Methods: Suspected cases were defined by acute watery diarrhea symptoms in cholera-confirmed settlements or suspected case symptoms with complications (dehydration or death) in non-cholera settlements. Confirmed cases were defined by a positive stool culture for toxigenic Vibrio cholera (O1 or O139). Upon notification, we interviewed cases to obtain demographic information, clinical symptoms, and risk factors. Environmental samples from water infrastructure were collected in new cholera-confirmed settlements.

Results: Between October and December 2022, 5,715 cholera cases were identified, out of which 18% were hospitalized (n=1049/5715) and <1% died (23/5715). Among the cases, 14% (848/5715) had stool specimens collected for culture and 8% (484/5715) were positive showing Vibrio Cholerae O1 subtype Ogawa Sequencing Type 69. The attack rate was 1/1000. The median age was 16 years (range: <1-89 years): 53% were female, and 63% were Lebanese versus 30% Syrian nationality. 77% resided in the Great North. V. cholera was detected in 32% of drinking water (24/74), 19% of domestic water (23/121), and 50% of irrigation water (5/10) samples.

Conclusions: Epidemiological and microbiological findings confirmed cholera presence in the population as well as water infrastructure. Recommendations for environmental response include proper maintenance of water plants, assessment of sanitation infrastructure, promotion of chlorine use in households, and community engagement in water testing. The recommendations for public health response include hygiene education, enhanced surveillance, proper case management, and the use of oral cholera vaccines in high-risk areas.

Keywords: Cholera, Lebanon, Outbreak, Acute Diarrheal diseases, Drinking Water, Sanitation

POSTER PRESENTATIONS

Title: Knowledge, Attitude, and Practice of Dentists Regarding Cross-Infection in Dental Specialist Centers in Babylon Province, Iraq During 2023

Theme: Poster
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Country: Iraq

Background: Infection control is crucial in dental healthcare settings to prevent the transmission of various pathogens. This study aimed to assess the knowledge, attitude, and practice of dentists working in specialized dental centers in the Babylon province of Iraq regarding cross-infection control.

Objectives: Determine the extent of knowledge, attitudes, and practices of dentists with regard to transmitted infections in their place of work.

Methods: A descriptive survey was conducted among a convenience sample of dentists using a self-administered questionnaire. The questionnaire assessed dentists' knowledge, attitude, and practice related to infection control measures. Data were analyzed using descriptive statistics.

Results: The mean age of participants was 27.4 ± 3.84. The age group with the highest percentage was (26-30) years, representing 42.3% of participants. Approximately two-thirds (65%) of the sample had ≤ 3 years of practical work, and 86.8% were general dentists. Fifty-eight percent underwent cross-infection control training. The majority (73.5%) learned about cross-infection from dental school courses. Most dentists recognized dental clinics as more prone to infectious diseases (92.7%) and knew the transmission routes of HIV, Hepatitis B, and Hepatitis C (77.4%). However, gaps in knowledge were found in airborne transmission (11.3%) and the prevalence of skin infections (26.6%). In terms of practice, dentists followed recommended procedures for blood exposure (86.0%) and used gloves during procedures (94.0%). Improvements were needed in relation to the consistent use of face masks and instrument sterilization procedures. Dentists had positive attitudes towards infection control, emphasizing the importance of medical waste disposal (87.5%) and Hepatitis B vaccination (83.5%). However, there were uncertainties and misconceptions, such as using ovens for sterilization.

Conclusions: Dentists in Babylon province demonstrated good knowledge and positive attitudes toward cross-infection control. However, specific knowledge gaps and areas of practice need more attention. Continuous education, training, and implementation of effective infection control measures are necessary to enhance dental professionals' understanding and ensure a safer healthcare environment.

Keywords: Dental Specialist Centers, Dentists, Cross-Infection

POSTER PRESENTATIONS

Title: Pertussis Outbreak Investigation in Washhah in Hajjah, Yemen (September 2022)

Theme: Poster
Authors: Jamil Ghailan Salim (jamil.ghailan@hotmail.com)
Country: Yemen

Background: Whooping cough or pertussis is a highly contagious respiratory disease caused by a bacterium called Bordetella pertussis. It can be prevented by vaccination. It is considered an important cause of infant mortality in Yemen. On Wednesday, August 31, 2022, the epidemiological surveillance coordinator in Washha district reported an increase in the number of pertussis cases in the villages of Dhaensubdistrict. On Thursday, September 1, 2022, a team from the governorate health office carried out a field visit to investigate suspected cases of whooping cough.

Objectives: To confirm the existence of the outbreak; to describe the outbreak as an epidemic according to time, place, and personnel; to determine risk factors; and to recommend control measures.

Methods: A descriptive study was conducted. An active house-to-house search was conducted using the WHO case definition. A pre-prepared written checklist was developed, and data were collected through a face-to-face interview with the caseworkers. The infection rate was calculated. The data were entered and analyzed using Excel and Epi Info 7.2. A case-control study was conducted to identify associated risk factors.

Results: Forty cases met the standard definition of pertussis cases. 63% of cases were males. 40% of the cases were in the age group (1 - less than 5 years). Most of the cases were from the Dhaensub district, and Al Thahra village was the most affected by 23%. Cases started in the 26th week, and the cases reached their peak during the 34th week. All cases suffered from continuous coughing, coughing in the form of seizures, rhinitis 100%, fever 78%, and post-coughing 70%. The overall infection rate was 3.9/10,000 population and the fatality rate was 2.5%. 67% of cases were unvaccinated.

Conclusions: An outbreak of whooping cough was confirmed clinically in Washha district, Hajjah governorate. Unvaccinated children were the cause of the outbreak. Overcrowding, house ventilation, and parents' educational status were the most important risk factors that contributed to the spread of the disease. It is highly recommended to educate parents about the importance of vaccination and to reach immunization services to areas that have not been reached through coordination with the people before the arrival of the vaccination activities teams and the participation of community leaders and actors in awareness activities.

Keywords: Pertussis, Outbreak, Hajjah, Yemen

POSTER PRESENTATIONS

Title: Prescription Errors and Prescribing Practices in Allergy Patients: A Cross-Sectional Study at National Institute of Health in Islamabad

Theme: Poster
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Country: Pakistan

Background: Prescription is one of the most important medical documents. It shows the treatment plan of patients. The World Health Organization has set minimum criteria for writing a good prescription, which ensures safe and cost-effective treatment. Prescription errors may have dire financial consequences for patients as most of the health services in Pakistan are paid out of pocket.

Objectives: This study aims to investigate the pattern of prescription errors and prescribing practices of Pakistani doctors in prescriptions for allergy patients and see their alignment with the World Health Organization's standards.

Methods: This cross-sectional study at the Allergy Center of the National Institute of Health in Islamabad was conducted from August 1, 2022 to October 30, 2022. Prescriptions were selected using systematic random sampling. The quality of prescriptions was assessed using a validated checklist.

Results: A total of 270 prescriptions were included. Of the total 2358 errors, 938 were omission errors and 1247 were commission errors. The commonest omission error was not recording the patient's weight (93%) and the commonest commission error was the use of incorrect medical abbreviations (95%). Only 3 prescriptions belonged to the fair category. The average number of drugs was 4.51. About 4.3% of drugs were prescribed by generic name and 30.0% of the drugs were prescribed from the essential drugs list. Forty percent of prescriptions included antibiotics.

Conclusions: The prescription practices of Pakistani doctors are not satisfactory and need improvement. Prescribing guidelines and training of physicians on good prescription writing are required.

Keywords: Prescription errors, Prescription Practices, Pakistan, Allergy, Rational Drug Use, Medical Abbreviations

POSTER PRESENTATIONS

Title: Salt Intake Intake among Patients with Hypertension and Normotensive People in Jordan Findings from Jordan Stepwise Survey (2019)

Theme: Poster
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Country: Jordan

Background: Excessive salt intake and unhealthy salt use behaviors are known to significantly contribute to the development and progression of hypertension. The prevalence of hypertension is alarmingly high in Jordan. A significant proportion of patients with hypertension are poorly controlled. Thus, it is imperative to investigate patients' behaviors regarding salt intake patterns.

Objectives: This study aimed to assess salt intake patterns among patients with hypertension and normotensive people.

Methods: The study used data from the Jordanian National Stepwise Survey 2019 for Non-Communicable Diseases (NCDs). The surveyed population included Jordanian and Syrian adults aged 18 to 69 years residing in Jordan. Hypertension was defined as being on anti-hypertensive drugs, having a systolic blood pressure ≥ 140 mmHg and/or having a diastolic blood pressure ≥90 mmHg. The chi-square test was used to compare proportions.

Results: The prevalence rate of hypertension was 30.2%, higher among females compared to males (61.9% vs. 38.1%). Patients with hypertension displayed more unhealthy practices compared to normotensive people, such as adding salt/salty sauce to food right before or during eating (55.5% vs. 53.3%, $p<0.001$) and eating processed foods with high salt content (38.2% vs. 30.5%, $p<0.001$). Hypertensive patients exhibited a less positive perception of salt consumption. Almost 78.7% of patients and 87.2% of normotensive people ($p<0.001$) thought it was important to reduce salt intake in the diet. Hypertensive patients were significantly less likely than normotensive people to report reduced consumption of processed foods (49.4% vs. 61.3%), the purchase of low sodium salt (14.7% vs. 17.6%), reading the salt or sodium content on food labels (19.9% vs. 27.8%), and engaging in other specific actions to reduce salt intake (3.0% vs. 2.3%).

Conclusions: A significant proportion of hypertensive participants exhibited unhealthy patterns of salt consumption. It is crucial to raise awareness about the impact of sodium on health in general and hypertension progression and promote the adoption of salt intake management practices among both hypertensive and non-hypertensive patients.

Keywords: Hypertension, Salt, Stepwise, Non-Communicable Diseases

POSTER PRESENTATIONS

Title: Stillbirth and Neonatal Mortality in Jordan Findings from Jordan Stillbirths and Neonatal Deaths Surveillance System

Theme: Poster
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Country: Jordan

Background: Stillbirth and neonatal mortality declined significantly in high- and some middle-income countries due to significant improvements in obstetric and neonatal care. Yet, stillbirth and neonatal mortality rates remain high in low-income countries. Low progress in reducing stillbirths and neonatal deaths in Jordan is due to the scarcity of data that matters.

Objectives: This study aimed to determine the rates, causes, and risk factors of stillbirths and neonatal mortality in Jordan.

Methods: An electronic stillbirth and neonatal deaths surveillance system was established in five hospitals in Jordan. Data on all births, stillbirths, and neonatal deaths and their causes from May 2019 to December 2020 were exported from the system and analyzed.

Results: A total of 29,592 women gave birth to 31,106 babies during 20 months. The stillbirth rate was 10.5 per 1,000 total births, the neonatal death rate was 14.2 per 1,000 live births, and the perinatal death rate was 21.4 per 1,000 total births. Of all neonatal deaths, 29.4% died within the first day of life and 77.8% died during the first week of life. For neonatal deaths occurring pre-discharge, the leading causes were respiratory and cardiovascular disorders (35.0%), low birth weight and prematurity (32.7%), and congenital malformations, deformations, and chromosomal abnormalities (19.5%). Almost one-third of stillbirths had an unspecified cause of death (33.3% of antepartum and 28.9% of intrapartum stillbirths). The acute antepartum event caused 27.4% of antepartum stillbirths and the acute intrapartum event caused 13.2% of intrapartum stillbirths. Congenital malformations, deformations, and chromosomal abnormalities contributed to 18.1% of antepartum stillbirths and 34.2% of intrapartum stillbirths.

Conclusions: There is a relative stability of stillbirth and neonatal mortality rates in Jordan. Several maternal and fetal conditions that contributed to stillbirths and neonatal deaths are preventable. Focused care needs to be directed at high-risk pregnant women and neonates with low birth weight and respiratory problems.

Keywords: Neonatal mortality, Stillbirth, Risk factors, Causes, Surveillance

POSTER PRESENTATIONS

Title: Socioeconomic Determinants of Smoking in Jordan

Theme: Poster
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Country: Jordan

Background: Cigarette smoking is a well-known risk factor for several ailments, including heart disease, lung cancer, and chronic obstructive pulmonary disease. The prevalence of various types of smoking in Jordan was investigated based on different variables.

Objectives: The present study aimed to provide outlines that may assist stakeholders and policymakers in their efforts to formulate practical plans and policies that address the specific causes of the alarmingly rising rates of tobacco use in Jordan.

Methods: This is a secondary analysis that evaluates the prevalence of traditional types of smoking using cross-sectional data from the Jordan National Stepwise Survey for Noncommunicable Diseases. A total of 5713 participants (2910 Jordanians and 2803 Syrians living outside of camps in Jordan) aged 18–69 years were included in the survey population. The chi-square test was utilized to compare the prevalence rates of various types of smoking and the socioeconomic and health-related characteristics of the population. The data were analyzed using SPSS.

Results: Findings showed that smoking rates differed between employed and jobless respondents of both genders. Unemployed women smoked (9.3%) and men (50%). Ever-married women were more likely to smoke manufactured cigarettes (10.7%) than single women (4%). Single men (66%) smoked more than ever-married men (65%). High prevalence of smoking manufactured cigarettes among Low-educated people (61%). The region-based data showed that male smoking tendencies prevail in the southern over central and northern regions in all types of smoking, whereas southern female smoking rates were the lowest. Lifestyle-wise, non-diabetic males and hypertensives smoked more of all sorts. Compared to normal, overweight, and obese participants (15.7%, 17.8%, and 15.9%), underweight female current smokers had the highest rate (29%). Fruit and vegetable consumption affects most smoking strategies, as healthy eaters avoid bad behaviors like smoking.

Conclusions: The study demonstrated that the burden of smoking and its consequences are obvious and alarming to the extent that they necessitate wise treatment measures.

Keywords: smoking, prevalence, disease, alarming rates, policymakers.

POSTER PRESENTATIONS

Title: The Challenges of Sustaining Vaccine Safety Monitoring: An Evaluation of the Adverse Events Following Immunization Surveillance System in Lakshmipur District, Bangladesh (2019-2022)

Theme: Poster
Authors: Imran Hossain Monju (monjucmc@yahoo.com), Quazi Ahmed Zaki (qzaki@emphnet.net), Tahmina Shirin (tahmina.shirin14@gmail.com)
Country: Bangladesh

Background: Adverse events following immunization (AEFI) surveillance is passive surveillance implemented in 64 districts of Bangladesh. A patient reporting target of 10 AEFI per 100,000 surviving infants per year was set in the Global Vaccine Action Plan (GVAP) to monitor the performance of AEFI surveillance.

Objectives: We aimed to evaluate AEFI surveillance as far as it meets its objectives and to identify areas that need strengthening.

Methods: We selected Lakshmipur district conveniently, interviewed stakeholders (n=21) from the community (subdistrict, district, and national levels) with a semi-structured questionnaire, reviewed records, and analyzed surveillance data from January 2019 to June 2022. We evaluated simplicity, timeliness, data quality, sensitivity, usefulness, and stability using the US Centers for Disease Control and Prevention (CDC) recommended morbidity and mortality weekly report (MMWR) guidelines for evaluating public health surveillance systems. Sensitivity was calculated whether the GVAP minimum patient reporting target of 10 AEFI per 100,000 surviving infants per year was achieved.

Results: During the evaluation period, 63 AEFI patients were reported. Among stakeholders, 76% correctly recalled the AEFI definition, 76.19% could mention at least two surveillance objectives and 90.1% could explain data flow. At the subdistrict level, 71% of forms were submitted on time. At the district and national levels, it was 90% and 100% respectively. Data was 15.87% complete. The sensitivity of the system was 100% in all years except in 2022 where it was 67.2%. Among sanctioned posts, 40% remained vacant, and 33.3% of stakeholders got training within the last year. The system reported two AEFI deaths. However, 50% of stakeholders received no feedback on AEFI from a higher authority.

Conclusions: The system is simple and highly sensitive, but the reporting rate is not satisfactory in comparison to the global reporting rate. However, improving timeliness, data quality, and reporting rate are still challenges. Ensuring the availability of trained staff and timely feedback is recommended for strengthening AEFI surveillance.

Keywords: Vaccine, Immunization, Passive, Surveillance, Attributes

POSTER PRESENTATIONS

Title: Scabies Outbreak Investigation in Flood-Affected Villages in Sanghar District,-Pakistan (December 2022): Unmatched Case-Control Study

Theme: Poster
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Country: Pakistan

Background: On December 27, 2022, the health authority of district Sanghar informed the Provincial Disease Surveillance and Response Unit regarding scabies cases (n=30) in Arain village. After verification, an epidemiological investigation was initiated.

Objectives: To identify associated risk factors and institute preventive and control measures.

Methods: A descriptive and unmatched casecontrol study was conducted with 82 cases and 166 controls. Case defined as "any person having skin manifestations of superficial burrows, intense itching, and/or generalized pruritic skin rash with or without secondary infection between August 15, 2022 and January 31, 2023". Controls were free from disease and selected from the same village. An active search was done. Data collected on a structured questionnaire and hospital records were reviewed. Multivariate logistic regressions were used to calculate the adjusted odds ratio with a 95% confidence interval and p-value <0.05.

Results: We identified 82 scabies cases (52 through active search) with a median age of 17.5 years (range: 8 months to 62 years). The overall attack rate was 12% with no deaths. Age group 40-49 years (n=10, 12%; attack rate 17%) and female gender (n=45, 55%; attack rate 13%) were highly affected. The index case was an 8-month male child who had a traveling history with their mother to the scabies-endemic area. The first case developed symptoms on September 26, 2022 and the last case onset was January 12, 2023. Multivariate analysis revealed that contact history (aOR=13.9: 95%CI 5.1-38.0), sharing clothes/towels (aOR=3.9; 95%CI 1.3-11.0), and sharing beds with scabies case (aOR=3.13: 95%CI: 1.0-9.5) were a predictor of the disease. However, small family size (aOR=0.10: 95%CI: 0.04-0.3), frequent bathing (aOR=0.07 95%CI 0.02-0.22), and daily change of clothes (aOR=0.24: 95%CI 0.09-0.62) had a protective effect.

Conclusions: Modifiable risk factors including contact history, and sharing of clothes /towels and beds were found as predictors of outbreaks. Medical camps were established for screening and clinical management. Health education sessions need to be conducted involving Lady Health Workers to raise awareness about prevention and control of the disease. A comprehensive WASH strategy needs to be implemented to prevent future outbreaks.

Keywords: Scabies, Sanghar-Pakistan, Unmatched case-control study.

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