EMPHNET
The Eastern Mediterranean
Public Health Network

GHD I EMPHNET: working
together for better health

EMPHNET Publications

2023

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Introduction

The Eastern Mediterranean Public Health Network (EMPHNET) plays a pivotal role in bolstering the public health infrastructure of countries within the Eastern Mediterranean Region (EMR). Its primary mission is to facilitate comprehensive public health workforce development, support and conduct rigorous epidemiological investigations on both communicable and non-communicable diseases (NCDs), evaluate the impact of various health programs, foster the creation and oversight of surveillance initiatives, and assess the healthcare landscape and its associated needs.

EMPHNET actively engages in collaborative research endeavors with academic and non-academic institutions, with a particular focus on public health and field epidemiology. Over the last decade, EMPHNET has been deeply involved in supporting numerous assessments, applied research projects, and laboratory studies. This dedication to research has culminated in the successful completion of multiple research initiatives.

Stemming from its commitment to improving the accessibility and utility of its research findings, EMPHNET diligently endeavors to disseminate these outcomes. This is achieved not only by supporting the publication of EMPHNET’s research in esteemed scientific journals, thereby contributing to the body of evidence crucial for guiding public health actions, but also by creating policy briefs and research digests. These succinct documents serve as invaluable resources for policymakers, empowering them to make well-informed, evidence-based decisions.

This document serves as an informative overview of EMPHNET's extensive publications, reflecting our dedication to advancing public health in the EMR and beyond.

Supporting Public Health Research Capacity, Quality, and Productivity in a Diverse Region.

AlHamawi R, Saad RK, Abdul Rahim HF, Mir Islam Saeed K, Husseini A, Khader Y, Al Nsour M.
Interact J Med Res. 2023 Jul 31;12:e39154. doi: 10.2196/39154.

Abstract

Public health research plays a critical role in strengthening health systems and improving their performance and impact. However, scholarly production in public health coming from the Eastern Mediterranean Region (EMR) remains well below the world average and lacks a tangible growth trend over time. During the seventh Eastern Mediterranean Public Health Network Regional Conference, a roundtable session brought together a panel of public health experts representing Global Health Development/Eastern Mediterranean Public Health Network affiliates, universities or academia, and research institutions from the region, where they shared insights on the current situation of public health research; challenges and barriers to research facing the different countries in the EMR and the region in general; and how research agendas, productivity, and quality can be supported through strengthening research capacity in the region. Although the region is diverse in terms of health system capacity and socioeconomic development, several common challenges were identified, including a lack of strategic prioritization to guide health research, insufficient funding, ineffective transfer of knowledge to policy and practice, limited availability of research facilities, and limited national and international research collaboration. Occupied countries and countries in a state of conflict, such as Palestine, face additional barriers, such as personal and social security, lack of control of borders and natural resources, travel and movement restrictions, and confidentiality challenges because of the continuing war conditions and occupation. However, there have been success stories in the EMR regarding research publications and their positive and effective impact on policy and decision-makers. To improve research resilience and public health care in the region, a collaborative approach involving institutions, policymakers, and relevant stakeholders is critical.

Colorectal Cancer in Jordan: Survival Rate and Its Related Factors.

Sharkas GF, Arqoub KH, Khader YS, Tarawneh MR, Nimri OF, Al-Zaghal MJ, Subih HS.
J Oncol. 2017;2017:3180762. doi: 10.1155/2017/3180762.

Abstract

Objectives. To estimate the survival rate of colorectal cancer (CRC) and determine its predictors among Jordanian patients who were diagnosed in the period of 2005–2010. Methods. This study was based on Jordan cancer registry. All CRC cases that were registered in cancer registry during 2005–2010 were analyzed using the survival analysis. The last date for follow-up was 1st Oct 2016. Results. A total of 3005 patients with CRC were registered during 2005–2010. The overall 5-year and 10-year survival rates for patients with CRC were 58.2% and 51.8%, respectively. The 5-year survival rate decreased significantly from 60.4% for the age <50 years to 49.3% for the age ≥70 years (). The 5-year survival rate was 72.1% for the localized stage, 53.8% for the regional stage, and 22.6% for the distant metastasis. In the multivariate analysis, the only

factors that were significantly associated with survival were age, grade, stage, and location of tumor. Conclusions. The overall 5-year and ten-year survival rates for CRC were 58.2% and 51.8%, respectively. Increased age, poor differentiation, advanced cancer stage, and right-sided cancers were associated with lower survival rates. Screening strategies are needed for early detection of colon adenomas and colorectal cancer in Jordan.

Trends in the Incidence of Cervical Cancer in Jordan, 2000-2013

Sharkas G, Arqoub K, Khader Y, Nimri O, Shroukh W, Jadallah H, Saheb T.
J Oncol. 2017; 2017:6827384. doi: 10.1155/2017/6827384.

Abstract

Public health research plays a critical role in strengthening health systems and improving their performance and impact. However, scholarly production in public health coming from the Eastern Mediterranean Region (EMR) remains well below the world average and lacks a tangible growth trend over time. During the 7th Eastern Mediterranean Public Health Network (EMPHNET) Regional Conference, a roundtable session brought together a panel of public health experts representing Global Health Development| EMPHNET affiliates, universities/academia, and research institutions from the region, where they shared insights on the current situation of public health research, challenges and barriers of research facing the different countries in the EMR and the region in general, and how research agenda, productivity and quality can be supported through strengthening research capacity in the region. Although the region is diverse in terms of health system capacity and socioeconomic development, several common challenges were identified, including a lack of strategic prioritization to guide health research, insufficient funding, ineffective transfer of knowledge to policy and practice, limited availability of research facilities, and limited national and international research collaboration. Occupied countries and countries in a state of conflict, such as Palestine, face additional barriers, such as personal and social security, lack of control on borders and natural resources, travel and movement restrictions, and confidentiality challenges because of the continuing war conditions and occupation. However, there have been success stories in the EMR regarding research publications and their positive and effective impact on policy and decision-makers. To improve research resilience and public health care in the region a collaborative approach involving institutions, policymakers, and relevant stakeholders is critical.

Blood Pressure of Jordanian Workers Chronically Exposed to Noise in Industrial Plants.

Nserat S, Al-Musa A, Khader YS, Abu Slaih A, Iblan I.
Int J Occup Environ Med. 2017 Oct;8(4):217-223. doi: 10.15171/ijoem.2017.1134.

Abstract

Background: Occupational studies investigating the association between blood pressure and noise exposure are almost lacking in the Eastern Mediterranean Region countries.

Objective: To determine the association between occupational exposure to high level of noise and blood pressure among a group of workers in Jordan.

Methods: All workers who had been exposing to noise for at least 3 years in 3 plants in Madaba governorate in Jordan were included in this cross-sectional study. A structured questionnaire was used to collect data. The occupational noise level was measured with a portable calibrated sound meter.

Results: We studied 191 male workers, of whom 145 (75.9%) were exposed to a noise level higher than the permissible limit of 85 dBA. The mean systolic blood pressure (SBP) and diastolic blood pressure (DBP) and the prevalence of hypertension were significantly higher among those exposed to higher noise level. In multivariate analysis, workers exposed to high level of noise had a significantly higher odds of hypertension compared to those exposed to noise level lower than the permissible limit (OR 4.7, 95% CI 1.6 to 13.8). The odds of hypertension increased by 17% (95% CI 10% to 30%) for each dB increase in noise intensity.

Conclusion: Exposure to high level of noise is associated with elevated blood pressure.

Keywords: Hearing loss; noise-induced; Hypertension; Jordan; Manufacturing and industrial facilities; Occupational exposure.

Epidemiology of Colorectal Cancer in Iraq, 2002-2014

Al Dahhan SA, Al Lami FH.
Gulf J Oncolog. 2018 Jan;1(26):23-26.

Abstract

Objectives: After cardiovascular diseases, cancer is one of the major causes of death in Iraq but there is scarcity of data on cancer. This study aimed to estimate the incidence rate of colorectal cancer in Iraq and its distribution and determine its trend in Iraq from 2002 to 2011.

Methods: The necessary data for recording the incidence of colorectal cancer in Iraq were obtained from three main sources including the cancer registry for the period of 2002-2014. Data included information on gender, age, geographical distribution, site of tumors, and histology types.

Results: A total of 7,246 cases of CRC were registered in the cancer registry for the period 2002-2011 and 706 cases in the National Cancer Hospital between 2012 and 2014. Male to female ratio varied from 1.17:1 to 1.28:1. About 40%-46% of cases were diagnosed in the age group of 40-59 years. The incidence rate increased from 2.75/105 pop in 2002 to 3.26/105 pop in 2011. Adenocarcinoma constituted 84.0% of all cases. Of the 706 registered cases during 2012-2014, 95% were diagnosed by histology of primary site. The degree of differentiation was moderate in 56% of cases. About 26% of cases were localized, 55.9% and 16% were with regional, and distant metastasis, respectively.

Conclusion: Iraq has a low CRC incidence rate but with a steady increase overtime. It is crucial to implement preventive strategies to control CRC in Iraq and to establish public awareness program about CRC and the importance of screening.

Pattern of Road Traffic Injuries in Yemen: A Hospital-based Study

Alfalahi E, Assabri A, Khader Y.
Pan Afr Med J. 2018 Mar 5;29:145. doi: 10.11604/pamj.2018.29.145.12974. eCollection 2018.

Abstract

Introduction: Road traffic injuries (RTIs) are the

eighth leading cause of death globally and the leading cause of death for young people. This study aimed to present time-limited trial surveillance in two referral hospitals to describe the pattern of RTIs in Sana'a, Yemen and determine road traffic crashes (RTCs) associated factors.

Methods: All RTIs presented to Emergency Departments (ED) of the two Sanaa city hospitals between August and October, 2015 were studied and described. Data were collected everyday by trained data collectors. A pretested questionnaire modified from WHO injury surveillance form was used for data collection.

Results: A total of 156 casualties from 128 RTCs had attended the two study hospitals during the study period. About 73% of victims were less than 30 years old. Only 13% of casualties were transported by ambulance. None of the victims wore the seat belt in case of 4-wheeled vehicles' users nor the helmet in case of 2-wheeled vehicles' users. Poor driving skills were involved in 133 (85%) casualties. Factors related to the vehicles contributed to 12% of RTCs. Of the 156 casualties, 17% had severe injuries and needed ICU admission. After 48 hours of the accident, 38% of patients ended with disability due to fractured limbs, 29% were not improving and their conditions were deteriorating, 18% had recovered and 5% died.

Conclusion: Several personal, behavioral, environmental and vehicles related factors had contributed to RTIs in Yemen. The burden of RTIs in Yemen in terms of disability and mortality is high.

Keywords: Yemen; injuries; road traffic crashes; road traffic injuries

Knowledge, Attitude, and Behaviors of Health Professionals Towards Smoking Cessation in Primary Healthcare Settings

Matouq A, Khader Y, Khader A, Al-Rabadi A, Al Omari M, Iblan I, Al-Sheyab N.
Transl Behav Med. 2018 Nov 21;8(6):938-943. doi: 10.1093/tbm/ibx045.

Abstract

This study aimed to assess the behaviors of multiple health professionals in primary healthcare settings in Jordan towards smoking cessation counseling and to determine the barriers to effective smoking cessation behaviors. A survey of 456 health professionals in primary healthcare settings was conducted. A self-administrated questionnaire was used to collect the data. About half of health professionals reported that they usually ask patients about smoking status and advise them to stop smoking (51.4% and 50.5%, respectively). Only 23.7% reported assessing the willingness of the patients to quit smoking and 17.9% reported discussing counseling options with smokers. Considerably fewer percentages of health professionals reported preparing their patients for withdrawal symptoms (6.0%), discussing pharmacotherapies (3.8%), and prescribing nicotine patches (6.4%). Key barriers to smoking cessation counseling, as reported by health professionals, included: insufficient resources and organizational support, limited coverage of cessation interventions, and lack of motivation to quit. Smoking cessation counseling was not routinely implemented by Jordanian health professionals. Barriers to effective delivery of smoking cessation counseling need to be integrated within relevant strategies aiming at

enhancing the frequency and quality of health professionals' engagement in smoking cessation.

Prevalence of Diabetes Mellitus Among Patients with Tuberculosis and Its Associated Factors in Sana'a, Yemen, 2021

Alturki S, Al Amad M, Mahyoub E, Al Hanash N, Alhammadi A.
Epidemiologia (Basel). 2023 Jun 13;4(2):202-211. doi: 10.3390/epidemiologia4020021.

Abstract

Diabetes mellitus (DM) is one of tuberculosis' (TB) ending barriers. TB patients with DM are at a higher risk than non-diabetes patients to develop complication, relapse and die. In Yemen, information on TB-DM comorbidity is lacking. This study aimed to determine the prevalence and associated factors of diabetes among TB patients at the National Tuberculosis Center (NTC) in Sana'a. A facility-based cross-sectional study was conducted. All TB patients aged >15 years who attended the NTC from July to November 2021 were screened for DM. Socio-demographic and behavioral information were collected through face-to-face interviews using questionnaires. A total of 331 TB patients were enrolled, 53% were males, 58% aged <40 years, and 74% were newly diagnosed with TB. Overall, DM prevalence was 18%. Higher rates of DM were found among TB patients that were male (OR = 3.0; 95% CI; 1.4-6.7), ≥50 years of age (OR = 10.8; 95% CI; 4.3-27.3), and those with a family history of diabetes (OR = 3.4; 95% CI; 1.6-6.9). Almost one fifth of TB patients had DM. The early detection of DM through immediate screening after a TB diagnosis and periodically during the course of treatment is crucial for TB patients' optimal care. Dual diagnostics for reducing the dual burden of TB-DM comorbidity is recommended.

Mental Disorders Among Elderly People in Baghdad, Iraq, 2017

Ibrahim AA, Ai-Lami F, Al-Rudainy R, Khader YS.
Inquiry. 2019 Jan-Dec;56:46958019845960. doi: 10.1177/0046958019845960.

Abstract

This study aimed to estimate the prevalence and determinants of mental disorders (MDs) among elderly people residing in nursing homes (NHs) and those living with their families (WF) in Baghdad, Iraq, 2017. A cross-sectional study was conducted on all elderly individuals residing in all NHs in Baghdad and an equal number of elderly people residing WF. MDs were defined based on Kessler Psychological Distress Scale (K10). We used relevant World Health Organization-accredited tools to identify the types of MDs. The prevalence of MDs among elderly people was 38.7%, being statistically significantly (P < .01) higher among those in NH (55.8%) compared with those living WF (21.5%). The proportion of types of MDs among NH versus WF residents was as follows: depression (35.4% vs 16.6%), anxiety (32.6% vs 9.9%), dementia (19.3% vs 5%), and suicide thoughts (25.4% vs 4.4%). The multivariate analysis showed many factors that were associated with MD. Low income, dependency on others, and being neglected were stronger determinant of MD among elderly people living WF. However, chronic joint pain, visual impairment, auditory impairment, and economic status deterioration were stronger determinant among those in NHs. The prevalence of MDs in the NH is more than double the prevalence in the community. We recommended enhancing elderly mental health care services including curative, preventive, and promotive activities.

Risk Factors for End-Stage Renal Failure Among Patients on Hemodialysis in Aljomhory Hospital, Sa'adah Governorate, Yemen: Hospital-Based Case-Control Study

Dahnan M, Assabri AM, Khader YS.
JMIR Public Health Surveill. 2019 Sep 25;5(3):e14215. doi: 10.2196/14215.

Abstract

Background: More than 16% of the world's population is affected by chronic kidney disease, and these people are at the highest risk of developing end-stage renal failure (ESRF).

Objective: The aim of this study was to determine the risk factors of ESRF in Sa'adah Governorate in Yemen.

Methods: A hospital-based case-control study (86 cases and 263 controls) was conducted in the Aljomhory Hemodialysis Center in Sa'adah city, Yemen. Patients with ESRF who attended the hemodialysis center in Aljomhory Hospital in Sa'adah City from January 1 to February 15, 2016, were included. Control participants were healthy persons without end-stage renal disease (ESRD) who attended Aljomhory Hospital as outpatients' relatives during the study period.

Results: A total of 86 cases and 263 controls were included in this study. The mean age was 43.3 (SD 17.7) years for cases and 32.3 (SD 13.0) years for controls. In univariate analysis of factors associated with ESRD, patients aged≥40 years were 3.7 times more likely to have ESRD than younger patients. The odds of ESRD was higher among men than women. Illiteracy was significantly associated with higher odds of ESRD. Hypertension (odds ratio [OR]=8.34), diabetes (OR=3.07), cardiovascular diseases (OR=12.71), presence of urinary stones (OR=21.87), recurrent urinary tract infection (OR=9.64), cigarette smoking (OR=2.44), and shammah use (OR=6.65) were significantly associated with higher odds of ESRD. Hypertension (OR=6.68), urinary stones (OR=16.08), and recurrent urinary tract infection (OR=8.75) remained significantly associated with ERD in multivariate analysis.

Conclusions: Hypertension, presence of urinary stones, and recurrent urinary tract infections were significantly associated with ESRF development. Improving the management of hypertension and designing suitable interventions to control problems of the urinary tract would help reduce ESRD prevalence.

Family Planning Interventions in Jordan: A Scoping Review

AlHamawi R, Khader Y, Al Nsour M, AlQutob R, Badran E.
Womens Health (Lond). 2023 Jan-Dec;19:17455057231170977. doi: 10.1177/17455057231170977.

Abstract

Background: Despite all efforts in Jordan to increase the demand and use of family planning services, many challenges have likely influenced fertility and contraceptive use outcomes. Improving accessibility and availability of family planning services and interventions to married women and their spouse is essential to improve pregnancy outcomes.

Objectives: This study reviewed the gray and peer-reviewed literature published between January 2010 and June 2022 that described family planning

interventions implemented in Jordan and highlighted the gaps identified in the literature.

Eligibility criteria: For inclusion, primary studies that included information regarding family planning interventions implemented in Jordan were retained.

Sources of evidence: PubMed database was searched between 2010 till June 2022, as well as bibliographies of the retrieved literature were screened for the relevant literature.

Charting methods: Information extracted from the interventions included author, publication year, study design and purpose, intervention name, aim of the intervention, population descriptor and sample size of the intervention, and impact of the intervention.

Results: A total of 10 studies that met the inclusion criteria were reviewed. The studies described/assessed 10 different interventions including communication interventions, child preparation programs, evidence-based educational program, counseling interventions, pharmacist booklet on effective use of oral contraceptive pills and Village Health Center project. Five family planning interventions targeted women and five targeted health care providers. Three interventions targeted men, two targeted religious leaders, and two targeted community health committees. Many of the interventions suffered from a lack of a robust methodological framework.

Conclusion: This scoping review showed that there is scarce information on the implementation of High Impact Practices in Family Planning in Jordan. The review identified a lack of robust evidence on the impact and effectiveness of family planning interventions on the access to and use of family planning services and methods. There is a need for developing, implementing, and evaluating family planning interventions that elicit a positive environment and encourage the use of family planning services.

Monitoring and Combating Waterpipe Tobacco Smoking Through Surveillance and Taxation

Saad RK, Maiteh A, Nakkash R, Salloum RG, Chalak A, Abu-Rmeileh NME, Khader Y, Al Nsour M.
JMIR Public Health Surveill. 2023 Mar 23;9:e40177. doi: 10.2196/40177.

Abstract

Waterpipe tobacco smoking (WTS) is a traditional tobacco use method that originated in the Eastern Mediterranean Region (EMR) and has resurged in recent decades. WTS rates in the EMR are the highest worldwide, especially among youth, exceeding cigarette-smoking rates in select jurisdictions. Despite its documented harm, the growing prevalence of WTS has been met with a poor regulatory response globally. At the epicenter of the WTS epidemic, countries in the EMR are in urgent need of effective tobacco control strategies that consider the particularities of WTS. A roundtable session, titled "Monitoring and Combating WTS Through Taxation and the Global Tobacco Surveillance System (GTSS)," was held as part of the 7th Eastern Mediterranean Public Health Network's regional conference. The session provided an overview of evidence to date about WTS policy control, the taxation of WTS, volumetric choice experiments for tobacco control research, and monitoring WTS patterns and control policies among adults and youth through the GTSS. The session highlighted the need to

update the regulation of WTS in the current global tobacco control policy frameworks and the need for developing tailored, evidence-based, and WTS-specific regulations to complement current tobacco control policy frameworks. Raising taxes to increase the price of tobacco products is the single most effective tobacco control measure, and these taxes can fund expanded government health programs. The effectiveness of taxation can be measured via volumetric choice experiments, which allow for the estimation of a complete set of own-price and cross-price elasticities that are instrumental for fiscal policy simulations. Finally, the surveillance of WTS (for example, through the GTSS) is critical to informing policy and decision makers. The Global Youth Tobacco Survey (GYTS) and Global Adult Tobacco Survey (GATS) are 2 GTSS products that provide nationally representative data among students aged 13-15 years and persons ≥15 years, respectively.

Adaptation, Implementation, and Evaluation of the HEARTS Technical Package in Primary Health Care Settings in Jordan to Improve the Management of Hypertension: A Pilot Study

Nsour MA, Khader Y, Al-Hadeethi OA, Kufoof L.

Abstract

The majority of patients with hypertension in Jordan have uncontrolled blood pressure. This study aimed to adapt and implement the hypertension management protocol (a module in the HEARTS technical package) in health care centers in Jordan and evaluate its effectiveness on hypertension management and control. The hypertension management protocol was adapted and implemented in six health centers followed by training of the healthcare staff on the adapted protocol. Patients above 18 years old who attended health centers during the study period were recruited consecutively. The blood pressure of 852 patients was monitored over 4 months, using an individual patient treatment card. At the baseline visit, the proportion of patients with uncontrolled blood pressure was 71.5%. After 4 months of the implementation of the protocol, the proportion of patients with uncontrolled blood pressure decreased to 29.1%. Of all studied characteristics, age was the only significant predictor of achieving blood pressure control. Patients aged ≤50 had a higher rate of controlled blood pressure readings after 4 months of implementation of the protocol compared to patients older than 60 years (OR = 1.98, 95% CI: 1.07, 3.67; P value = 0.028). In conclusion, the implementation of the HEARTS hypertension management protocol has successfully achieved better control of the blood pressure of the enrolled patients after 4 months of implementation. To achieve better control of hypertension in the general population, integrating evidence-based strategies for hypertension control that are listed in the HEART technical package into routine care is strongly recommended.

Mental Health and Psychosocial Problems Among Children and Adolescents in Jordan: A Scoping Review

AlHamawi R, Khader Y, Abu Khudair S, Tanaka E, Al Nsour M.
Children (Basel). 2023 Jul 4;10(7):1165. doi: 10.3390/children10071165.

Abstract

Introduction: In Jordan, mental health morbidity among children and adolescents is on the rise. Several studies in Jordan have assessed mental

health issues and their associated factors among adolescents; however, there remains a lack of a collation of data regarding such issues. Objectives: To review the prevalence rates of mental health problems among children and adolescents in Jordan to understand the evidence base concerning psychiatric morbidity. Methods: The PubMed database, Cochrane Library, Virtual Health Library (VHL) Lilac, and APA PsycArticles were searched for literature published between January 2010 and May 2023. Studies were included if they were conducted on children and adolescents (≤19 years), were observational studies that reported prevalence data regarding psychosocial problems, and were studies conducted in Jordan. Results: The search yielded 211 records, of which 33 studies were assessed for eligibility and 28 met the inclusion criteria. The sample age ranged from 6–19 years. The prevalence rates ranged from 7.1% to 73.8% for depression, 16.3% to 46.8% for anxiety, 13.0–40.6% for ADHD, 11.7–55.2% for overall emotional and behavioral difficulties, 16.2–65.1% for PTSD, and 12–40.4% for eating disorders. Conclusions: The findings highlight the magnitude of mental health problems among children and adolescents and the heterogeneity of the results. Further studies are needed to investigate the prevalence of eating disorders among refugees, as well as sleeping disorders and substance use disorders among all adolescents.

Epidemiologic and Clinical Characteristics of Diabetic Foot Ulcer Among Patients with Diabetes in Afghanistan: An IDF Supported Initiative

Samad Omar A, Ahmad Faiz K, Mir Islam Saeed K, Ahmad Humayoun F, Safi K.
Diabetes Res Clin Pract. 2023 Feb;196:110227. doi: 10.1016/j.diabres.2022.110227. Epub 2022 Dec 18.

Abstract

Aim: The aim is to illustrate epidemiological and clinical characteristics of diabetic patients with foot ulcer (DFU) in Kabul diabetic medical center (KDMC), Afghanistan.

Method: It is a descriptive study explaining the characteristics of diabetic patients with DFU admitted to KDMC, between 1/9/2019 to 31/8/2020 which is a center for management of diabetic patients including DFU. The university of Texas diabetic classification for DFU was used.

Results: Totally 3159 patients admitted to KMDC of whom 47.4% were females and 96.7% type 2 diabetes. The proportion of DFU was 9.2%. The patients' mean age was 55.4 ± 10.6 years and 78% were coming from Kabul. Prevalence of smoking and snuff use were 8.6% and 5.6% respectively. Majority of females 93% were housewives. The duration of diabetes was 5-19 years. Almost two-third were under glycaemia and HbA1c control and 9.2% had history of amputation. The common symptoms were burning, aching, numbness and tingling. The most common cause of DFU was both neuropathy and arteriopathy. After treatment 16% were referred for orthopedic procedures.

Conclusions: DFU affects almost one-tenth of diabetics while a significant number of patients attend at late stage requiring orthopedic treatment. Monitoring of diabetic patients to prevent DFU is important is recommended.

Risk Factors of Breast Cancer in Hadramout Valley and Desert, Yemen

Bashamakha G, Bin Sumait H, Bashamakha M, Al Serouri A, Khader Y.
Int J Prev Med. 2019 Oct 9;10:161. doi: 10.4103/ijpvm.IJPVM_251_17. eCollection 2019.

Abstract

Background: The incidence of breast cancer is on rise in low- and middle-income countries as populations increasingly adopt western lifestyles. Studies on risk factors of cancers including breast cancer are lacking in Yemen. Therefore, this study aimed to determine the risk factors of breast cancer among women registered at Hadramout Valley and Desert Oncology Center (HVDOC).

Methods: A case-control study was conducted at HVDOC, Yemen. All women who were registered in HVDOC and diagnosed with breast cancer and confirmed by histopathology during 2011-2015 were selected as cases. Age-matched controls were selected from women who underwent mammography in HVDOC during 2011-2015 and were confirmed to be free of breast cancer. Data were collected using semi-structured questionnaire and clinical data were Abstracted from the medical records.

Results: A total of 105 patients and 210 controls were included in this study. About 70.5% of cases and 72.4% of control were 50 years old or younger. Compared with married women, divorced women had higher odds of breast cancer [odds ratio (OR) = 2.2]. The odds of breast cancer was higher for women who had never breastfed a child (OR = 1.7). Having hypertension (OR = 2.5), family history of malignancy (OR = 2.4), and postmenopausal status (OR = 2.0) were significantly associated with higher odds of breast cancer in multivariate analysis.

Conclusions: The main risk factors for breast cancer among women in Yemen are divorced marital status, never breastfed a child, having hypertension, family history of malignancy, and post menopause. Regular screening especially among women with high risk is needed.

Survival Rate of Gastric Cancer Patients in Jordan: Secondary Data Analysis

Aqel A, Khader Y, Arqoub K, Nimri O.
JMIR Public Health Surveill. 2020 May 4;6(2):e14359. doi: 10.2196/14359.

Abstract

Background: Gastric cancer accounts for 2.7% of all newly diagnosed cancer cases in Jordan.

Objective: The aim of this study was to calculate the survival rate and its determinants among Jordanian patients who were diagnosed with gastric cancer between 2010 and 2014.

Methods: A descriptive study was conducted based on secondary analysis of data from the Jordan Cancer Registry during the period of 2010-2014. Only cancer-related deaths were recorded as "death" in the survival analysis.

Results: A total of 1388 new cases of gastric cancer were recorded between 2010 and 2014. Of these, 872 (62.8%) were Jordanians and 60.5% were males. The mean age at diagnosis was 58.9 years and the median follow-up time was 1.6 years. The 5-year survival rate decreased significantly from 89% in patients with well-differentiated cancer to 32% in patients with poorly differentiated cancer (P=.005). The overall 5-year survival rate was 37.7% and the median survival was 1.48 years (95% CI 1.179-1.783). The 5-year survival rate decreased significantly with increasing age and with advanced stage of the disease: the 5-year survival rate was 75% for localized-stage, 48% for regional-stage, and

22.7% for distant-metastasis disease (P=.005).

Conclusions: This study showed that the overall 5-year survival rate among patients with gastric cancer in Jordan between 2010 and 2014 was 37.7%, which is higher than the reported rates from different countries in the Eastern Mediterranean region such as Egypt.

The Capacity of Primary Health Care Centers in Jordan to Manage Hypertension: Areas for Improvement

Al-Hadeethi O, Al Nsour M, Khader Y, Alkhlaifat OK, Al Jawaldeh H, Hayajneh A.
J Hum Hypertens. 2022 May;36(5):473-481. doi: 10.1038/s41371-020-00433-z. Epub 2020 Oct 26. PMID: 33106597

Abstract

The assessment of the capacity of Primary Health Care (PHC) settings for the management of hypertension is essential to identify areas for improving management outcomes. This study aimed to assess the capacity of PHC centers in Jordan to manage hypertension including the assessment of human resources, equipment, and infrastructure. All comprehensive PHC centers located in Irbid and Mafraq governorates in north of Jordan (n = 23) were assessed. An assessment tool from HEARTS Technical Package was adapted and used for assessment. All centers have general practitioners and half of the centers (n = 11, 47.8%) had at least one family doctor working full time. In only one center, all doctors, nurses, and other health workers were trained on the management of hypertension. All centers, except one, had at least one functional automatic blood pressure measuring devices (BPMDs). Almost two thirds of centers (43.5%) had no measuring tapes. ECG machines were present in all centers except two. One third (n = 8, 34.8%) of centers had no functional glucometers. The majority of health centres carry out the laboratory investigations. Educational materials on physical activity, hypertension, and diabetes were seen in four (17.4%) centers only. Necessary medications were always available in the majority of health centers. In conclusion, this assessment revealed many areas for improvement in human resources, equipment, infrastructures, and other resources, such as developing an updated guideline/protocol of hypertension management, training the PHC staff on these guidelines, providing PHC centers with the necessary equipment, and establishing e-registry to improve documentation of data.

Non-Communicable Diseases Research Output in the Eastern Mediterranean Region: An Overview of Systematic Reviews

Akkawi A, Khabsa J, Noubani A, Jamali S, Sibai AM, Lotfi T.
BMC Med Res Methodol. 2020 Mar 20;20(1):68. doi: 10.1186/s12874-020-00924-0.

Abstract

Background: Rates of non-communicable diseases (NCDs) are rapidly rising in the Eastern Mediterranean Region (EMR). Systematic reviews satisfy the demand from practitioners and policy makers for prompt comprehensive evidence. The aim of this study is to review trends in NCD systematic reviews research output and quality by time and place, describe design and focus, and examine gaps in knowledge produced.

Methods: Using the Montori et al. systematic reviews filter, MeSH and keywords were applied to search Medline Ovid, Cochrane Central and Epistemonikos for publications from 1996 until 2015 in the 22 countries of the EMR. The 'Measurement Tool to Assess Systematic

Reviews', AMSTAR, was used to assess the methodological quality of the papers.

Results: Our search yielded 2439 papers for Abstract and title screening, and 89 papers for full text screening. A total of 39 (43.8%) studies included meta-analysis. Most of the papers were judged as being of low AMSTAR quality (83.2%), and only one paper was judged as being of high AMSTAR quality. Whilst annual number of papers increased over the years, the growth was mainly attributed to an increase in low-quality publications approaching in 2015 over four times the number of medium-quality publications. Reviews were significantly more likely to be characterized by higher AMSTAR scores (±SD) when meta-analysis was performed compared to when meta-analysis was not performed (3.4 ± 1.5 vs 2.6 ± 2.0; p-value = 0.034); and when critical appraisal of the included studies was conducted (4.3 ± 2.3 vs 2.5 ± 1.5; p-value = 0.004). Most of the reviews focused on cancer and diabetes as an outcome (25.8% and 24.7%, respectively), and on smoking, dietary habits and physical activity as exposures (15.7%, 12.4%, 9.0%, respectively). There was a blatant deficit in reviews examining associations between behaviors and physiologic factors, notably metabolic conditions.

Conclusions: Systematic reviews research in the EMR region are overwhelmingly of low quality, with gaps in the literature for studies on cardiovascular disease and on associations between behavioral factors and intermediary physiologic parameters. This study raises awareness of the need for high-quality evidence guided by locally driven research agenda responsive to emerging needs in countries of the EMR.

The Profile of Non-Communicable Disease (NCD) Research in the Middle East and North Africa (MENA) Region: Analyzing the NCD Burden, Research Outputs and International Research Collaboration

Aggarwal A, Patel P, Lewison G, Ekzayez A, Coutts A, Fouad FM, Shamieh O, Giacaman R, Kutluk T, Khalek RA, Lawler M, Boyle P, Sarfati D, Sullivan R.
PLoS One. 2020 Apr 27;15(4):e0232077. doi: 10.1371/journal.pone.0232077. eCollection 2020.

Abstract

Objectives: Despite the rising risk factor exposure and non-communicable disease (NCD) mortality across the Middle East and the North African (MENA) region, public health policy responses have been slow and appear discordant with the social, economic and political circumstances in each country. Good health policy and outcomes are intimately linked to a research-active culture, particularly in NCD. In this study we present the results of a comprehensive analysis of NCD research with particular a focus on cancer, diabetes and cardiovascular disease in 10 key countries that represent a spectrum across MENA between 1991 and 2018.

Methods: The study uses a well validated bibliometric approach to undertake a quantitative analysis of research output in the ten leading countries in biomedical research in the MENA region on the basis of articles and reviews in the Web of Science database. We used filters for each of the three NCDs and biomedical research to identify relevant papers in the WoS. The countries selected for the analyses were based on the volume of research outputs during the period of analysis and stability, included Egypt, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia,

Turkey and the United Arab Emirates.

Results: A total of 495,108 biomedical papers were found in 12,341 journals for the ten MENA countries (here we consider Turkey in the context of MENA). For all three NCDs, Turkey's output is consistently the highest. Iran has had considerable growth in research output to occupy second place across all three NCDs. It appears that, relative to their wealth (measured by GDP), some MENA countries, particularly Oman, Qatar, Kuwait and the United Arab Emirates, are substantially under-investing in biomedical research. In terms of investment on particular NCDs, we note the relatively greater commitment on cancer research compared with diabetes or cardiovascular disease in most MENA countries, despite cardiovascular disease causing the greatest health-related burden. When considering the citation impact of research outputs, there have been marked rises in citation scores in Qatar, Lebanon, United Arab Emirates and Oman. However, Turkey, which has the largest biomedical research output in the Middle East has the lowest citation scores overall. The level of intra-regional collaboration in NCD research is highly variable. Saudi Arabia and Egypt are the dominant research collaborators across the MENA region. However, Turkey and Iran, which are amongst the leading research-active countries in the area, show little evidence of collaboration. With respect to international collaboration, the United States and United Kingdom are the dominant research partners across the region followed by Germany and France.

Conclusion: The increase in research activity in NCDs across the MENA region countries during the time period of analysis may signal both an increasing focus on NCDs which reflects general global trends, and greater investment in research in some countries. However, there are several risks to the sustainability of these improvements that have been identified in particular countries within the region. For example, a lack of suitably trained researchers, low political commitment and poor financial support, and minimal international collaboration which is essential for wider global impact.

Cancer Registration in the Middle East, North Africa, and Turkey: Scope and Challenges

Abdul-Sater Z, Shamseddine A, Taher A, Fouad F, Abu-Sitta G, Fadhil I, Saab R, Sullivan R, Adib SM, Saleh S, Mukherji D; ICRIM.
JCO Glob Oncol. 2021 Jul;7:1101-1109. doi: 10.1200/GO.21.00065.

Abstract

Purpose: National cancer control strategies have been identified as essential tools for reducing and managing the growing burden of cancer in low- and middle-income countries. Cancer registration is an instrumental component of any cancer control strategy, providing the data to inform effective cancer policy. In the Middle East, North Africa, and Turkey (MENAT) region, cancer registration varies immensely and faces multifaceted challenges including protracted conflict. This study investigates and maps out the present capacities and outputs of cancer registration in the MENAT region and identifies thematic barriers facing implementation and utilization of cancer registry data.

Materials and methods: We used a self-administered online survey with open and close-ended questions targeting national and institutional cancer registry managers in the MENAT countries.

Results: Registry managers from 19 MENAT countries reported the presence of 97 population-based, 48 hospital-based, and 24 pathology-based registries. Most population-based registries were well- or partially developed. Lack of accurate death records, complete medical records, and communication between stakeholders and deficiencies in trained personnel were critical challenges that were more severe in active conflict zones and neighboring conflict-affected regions. Cancer registration challenges included weak health infrastructure, absence of legislation mandating cancer registration, and disruption of cancer registration because of active conflict and loss of funding. Refugee host countries, such as Lebanon, Turkey, and Jordan, also reported conflict-related challenges including refugee mobility and lack of accurate data on forced migrants.

Conclusion: This study provides a much-needed understanding of the current landscape and contextual challenges affecting cancer registration in the MENAT. These data are important for identifying areas on which to focus regional capacity-strengthening initiatives.

Global School-Based Student Health Survey: Country Profiles and Survey Results in the Eastern Mediterranean Region Countries

Abdalmaleki E, Abdi Z, Isfahani SR, Safarpoor S, Haghdoost B, Sazgarnejad S, Ahmadnezhad E.
BMC Public Health. 2022 Jan 19;22(1):130. doi: 10.1186/s12889-022-12502-8.

Abstract

Background: The increasing prevalence of non-communicable diseases (NCDs) has some major implications on many countries to achieve universal health coverage. This study aimed to investigate the implementation of Global School-based Student Health Survey (GSHS), which is used to assess the risk factors of NCDs among children and adolescents in the eastern Mediterranean region (EMR).

Methods: This study was a meta-analysis and systematic literature review of 2001-2018 published studies, which were found by searching PubMed, Google Scholar, WHO, and CDC databases. In this study, the target group was students aged between 13 and 17 years old. GSHS implementation as well as risk factors of NCDs were compared across different countries. The random-effect model for meta-analysis was considered at 95% confidence interval.

Result: In the EMR, 19 countries have implemented GSHS at least once following the survey manual (37 surveys). Overall, 201,795 students were included in our analysis. The overall estimation prevalence rateof the overweight was 24.5% (20.6-28.8), obesity was 7.3% (5.4-9.5), insufficient physical activity was 82.4% (80.7-84.1), tobacco usage was 14.3% (10.53-18.67), and smoking was 9.6% (8.1-11.3), respectively. Among those aged 13 to 17 years old, these rates were estimated as 19.8 (13.2-27.3), 9.7 (6.2-14.0), 86.1 (84.1-87.9), 17.8 (11.8-24.7), and 11.5 (9.4-13.8), respectively.

Conclusion: GSHS has been widely implemented across EMR countries. Using nationally representative data, the results show that more efforts are needed to target the NCDs risk factors among adolescents in the region.

Keywords: Adolescence; Eastern Mediterranean region; Global school-based student health survey; Non-communicable diseases; Sustainable development goals; Universal health coverage.

Scaling up Prevention and Control of Noncommunicable Diseases in the WHO Eastern Mediterranean Region

Fouad H, Latif NA, Ingram RA, Hammerich A. East Mediterr Health J. 2018 Apr 5;24(1):52-62.

Surveillance is an essential component in the campaign to prevent and control noncommunicable diseases (NCDs), both globally and in the Eastern Mediterranean Region (EMR). In order to address the increasing burden from these diseases, countries must first evaluate their own systems and see what steps need to be taken to improve preparedness. Therefore, the WHO Regional Office for the Eastern Mediterranean in Cairo, Egypt, conducts country capacity surveys on a regular basis to compare each Member State's NCD provision to the Framework for Action to implement the UN Political Declaration (2011). Ten progress indicators cover governance and planning, reducing risk factors and healthcare provision. Each one is scored for whether a country is fully, partially or not achieving this goal. This review focuses on comparing the Progress Monitor reports for the 22 EMR countries in 2015 and 2017. While the criteria used to assess some of the indicators have been updated over this period, many categories still show strong improvements. However, others still require extensive work if countries are to meet the sustainable development goal of reducing by 25% the number of premature deaths from NCDs by the year 2025.

Surveillance

Evaluation of the Acute Flaccid Paralysis Surveillance System in Polio-Free Jordan, 2012-2016: Retrospective Secondary Analysis

Zerriouh F, Khader Y, Qasem N, Abusal K, Iblan I, Ghaffari L, Abdallat M.
JMIR Public Health Surveill. 2019 Sep 27;5(3):e14217. doi: 10.2196/14217.

Abstract

Background: As part of the polio-eradication strategy, the World Health Organization (WHO) has established a global acute flaccid paralysis (AFP) surveillance system. AFP surveillance has successfully helped Jordan achieve polio-free certification. However, there is a substantial risk of polio importation from neighboring countries including Syria and Iraq.

Objective: This study aimed to evaluate the AFP surveillance in Jordan and identify areas that need improvement.

Methods: This retrospective study is a secondary analysis of data that were routinely collected between 2012 and 2016 by Jordan's Expanded Program on Immunization. The WHO's minimum performance indicators were used to evaluate the AFP surveillance.

Results: Cumulatively, 328 AFP cases had been reported. Almost half (n=168, 51.3%) of the patients were aged 1-5 years, and 55.8% (n=183) were male. All cases were discarded (classified as a nonpolio case). The most common cause of AFP was Guillain-Barre Syndrome (n=115, 35.1%). The annualized nonpolio AFP rate increased from 1.4/100,000 children below 15 years of age in 2012 to 4.3 in 2016. National and subnational

sensitivities were not met in 2012 and 2013. Adequacy of stool specimens and timeliness of specimens arriving at and processed in the laboratory were constantly above the minimum target. Timeliness of the investigation met the expected target but with a decreasing trend. The nonpolio enterovirus isolation rate was below the target, except in 2016.

Conclusions: The AFP surveillance system in Jordan is performing well; however, additional efforts are needed to strengthen the subnational sensitivity. The cold chain from sample collection to laboratory testing has to be maintained to ensure the reliability of stool specimens required for isolation of the nonpolio enterovirus.

Performance of Multidrug-Resistant Tuberculosis Surveillance in Yemen: Interview Study

Abdulmughni J, Mahyoub EM, Alaghbari AT, Al Serouri AA, Khader Y.
JMIR Public Health Surveill. 2019 Oct 3;5(4):e14294. doi: 10.2196/14294.

Abstract

Background: Multidrug-resistant tuberculosis (MDR-TB) is a major challenge to ending TB occurrence by 2035. In Yemen, the 2011 survey showed an MDR-TB prevalence of 1.4% among new cases and 14.4% among previously treated cases. The National Tuberculosis Control Program (NTCP) established four MDR-TB sentinel surveillance sites in 2013 to monitor the MDR-TB situation. In Yemen, the 2011 survey showed an MDR-TB prevalence of 1.4% among new cases and 14.4% among previously treated cases. The NTCP established four MDR-TB sentinel surveillance sites in 2013 to monitor the MDR-TB situation.

Objective: This study aimed to assess the performance of MDR-TB surveillance and determine its strengths and weaknesses.

Methods: We used the updated Center for Diseases Control and Prevention guidelines for evaluating public health surveillance systems. Interviews were conducted with NTCP managers and Regional MDR-TB centers' staff using a semistructured questionnaire. We used a 5-point Likert scale to assess the usefulness and other attributes (eg, simplicity and flexibility). The mean percentage was calculated for each attribute and used for the final rank of the performance: poor (<60%), average (60%-80%), and good (>80%).

Results: The MDR-TB surveillance system achieved good performance in usefulness (87%), acceptability (82%), and data quality (91%); average performance in flexibility (61%) and simplicity (72%); and poor performance in stability (55%). The overall performance score was average (74%). Although strong commitment, good monitoring, and well-trained staff are the main strengths, depending on an external fund is a major weakness along with unavailability of the MDR-TB unit at the governorate level.

Conclusions: Although the MDR-TB surveillance system has achieved an average overall performance, more efforts are required to improve its stability by ensuring constant power supply to enable laboratories to perform necessary diagnostic and follow-up tests. Gradual replacement of donors' funds by the government is recommended. Scaling up of MDR-TB services and removing access barriers are crucial.

Evaluation of HIV Reporting Form in Sana'a City, Yemen, 2016

Abdulrazzak MH, Alsahybi AH, Assabri A, Khader Y.
Inquiry. 2019 Jan-Dec;56:46958019847020. doi: 10.1177/0046958019847020.

Abstract

Background: Multidrug-resistant tuberculosis (MDR-TB) is a major challenge to ending TB occurrence by 2035. In Yemen, the 2011 survey showed an MDR-TB prevalence of 1.4% among new cases and 14.4% among previously treated cases. The National Tuberculosis Control Program (NTCP) established four MDR-TB sentinel surveillance sites in 2013 to monitor the MDR-TB situation. In Yemen, the 2011 survey showed an MDR-TB prevalence of 1.4% among new cases and 14.4% among previously treated cases. The NTCP established four MDR-TB sentinel surveillance sites in 2013 to monitor the MDR-TB situation.

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Conclusions: Although the MDR-TB surveillance system has achieved an average overall performance, more efforts are required to improve its stability by ensuring constant power supply to enable laboratories to perform necessary diagnostic and follow-up tests. Gradual replacement of donors' funds by the government is recommended. Scaling up of MDR-TB services and removing access barriers are crucial.

Knowledge, Awareness, and Compliance of Disease Surveillance and Notification Among Jordanian Physicians in Residency Programs

Abdulrahim N, Alasasfeh I, Khader YS, Iblan I.
Inquiry. 2019 Jan-Dec;56:46958019856508. doi: 10.1177/0046958019856508.

Abstract

Health professionals' knowledge and awareness of the disease surveillance is essential for reporting diseases to health departments. This study aimed to assess the knowledge and attitudes of Jordanian physicians toward public health surveillance of communicable disease. A cross-sectional study was conducted among resident doctors who were working in 4 main Ministry of Health hospitals and 2 teaching hospitals in Jordan in September 2017. A self-administered paper-based questionnaire was used to collect the data. The questionnaire collected information about

sociodemographic and practice-related characteristics of physicians and included items to assess their knowledge of surveillance and reporting practices. This study included 223 physicians (152 males and 71 females). About 60.1% of the residents were graduates from medical schools in Jordan and the remaining (39.9%) were graduates from medical schools in other countries. Approximately two thirds of residents (62.3%) were doing their residency in Ministry of Health hospitals and the rest (37.7%) in 2 teaching hospitals. Only 44.8% of physicians had defined surveillance correctly. Only 27.4% of physicians had been educated or trained on surveillance. About 39.5% of physicians had filled at least one report form during their practice. The main reasons for not reporting mandatory diseases were high workload (49.8%) and being not trained on reporting diseases (46.6%). A relatively high percentage of physicians have insufficient knowledge of surveillance and reporting of notifiable communicable diseases. Training of physicians on surveillance and diseases notification is highly needed. The practice of disease notification should be enforced in Jordanian hospitals.

An Electronic Disease Early Warning System in Sana'a Governorate, Yemen: Evaluation Study

Mayad M, Alyusfi R, Assabri A, Khader Y. JMIR Public Health Surveill. 2019 Nov 19;5(4):e14295. doi: 10.2196/14295.

Abstract

Background: Electronic Disease Early Warning System (eDEWS) is one of the effective programs in epidemiological surveillance.

Objective: This study aimed to identify the strengths and weaknesses of eDEWS in Sana'a governorate, determine its usefulness, and assess its performance in terms of the system attributes, including simplicity, flexibility, data quality, acceptability, representativeness, timeliness, and stability.

Methods: Updated guidelines on the evaluation of public health surveillance from the Center for Disease Control and Prevention (CDC) were used to evaluate the eDEWS in Sana'a governorate. Stakeholders from different levels were interviewed about the performance of the eDEWS.

Results: The overall score for the usefulness of the eDEWS was good (mean=83%). The overall system performance was good (86%). The highest attribute score was 100% for representativeness and the lowest score was 70% for stability. The system simplicity and acceptability were good. Although the system representativeness and flexibility were excellent, the stability was average. System completeness and timeliness were 100%.

Conclusions: In conclusion, eDEWS in Yemen is useful and met its main objective. The overall level of system performance was good.

The Acute Flaccid Paralysis (AFP) Surveillance System in Yemen, 2010-2015: Descriptive Study Based on Secondary Data Analysis

Mayad M, Alyusfi R, Assabri A, Khader Y. JMIR Public Health Surveill. 2019 Nov 19;5(4):e14295. doi: 10.2196/14295.

Abstract

Background: Acute flaccid paralysis (AFP) surveillance is an essential strategy for poliovirus eradication.

Objective: This study aimed to evaluate the performance of the AFP surveillance system in Yemen from 2010 to 2015, identify components that require strengthening, and compare the indicators by year and governorates.

Methods: This descriptive study was based on secondary analysis of AFP surveillance data reported during 2010-2015 from all Yemeni governorates. The World Health Organization (WHO) minimum performance standards were used to evaluate the performance of the AFP surveillance system.

Results: A total of 3019 AFP cases were reported between January 2010 and December 2015. At the national level, AFP surveillance achieved WHO targets throughout the evaluating period for the nonpolio AFP rate of cases per 100,000 members of the population younger than 15 years of age, proportion of AFP cases reported within 7 days, proportion of AFP cases investigated within 48 hours of notification, proportion of AFP cases with two adequate stool specimens, and proportion of stool specimens from which nonpolio enterovirus was isolated. However, the proportion of specimens that arrived at the central level within 3 days of the first sample collection and the proportion of stool specimens with results sent from the reference laboratory within 28 days of receipt did not reach targets in 2011 and 2015, respectively.

Conclusions: The AFP surveillance system in Yemen has met most of the WHO indicator levels. Nevertheless, the evaluation showed areas of weakness regarding the arrival of specimens at the central level within 3 days of the first sample collection and delays in processing of the results and submitting feedback by the laboratory. Therefore, there is a need to strengthen the follow-up of specimens submitted to the laboratory.

Evaluation of the National Tuberculosis Surveillance System in Sana'a, Yemen, 2018: Observational Study

Al Kalali FSA, Mahyoub E, Al-Hammadi A, Anam L, Khader Y.
JMIR Public Health Surveill. 2021 Nov 30;7(11):e27626. doi: 10.2196/27626.

Abstract

Background: Tuberculosis remains a public problem that is considered one of the top causes of morbidity and mortality worldwide. The National Tuberculosis Control Program in Yemen was established in 1970 and included in the national health policy under the leadership of the Ministry of Public Health and Population to monitor tuberculosis control. The surveillance system must be evaluated periodically to produce recommendations for improving performance and usefulness.

Objective: This study aims to assess the usefulness and the performance of the tuberculosis surveillance system attributes and to identify the strengths and weaknesses of the system.

Methods: A quantitative and qualitative evaluation of the national tuberculosis surveillance system was conducted using the Centers for Disease Control and Prevention's updated guidelines. The study was carried out in 10 districts in Sana'a City. A total of 28 public health facilities providing tuberculosis services for the whole population in their assigned catchment areas were purposively selected. All participants were interviewed based on their involvement with key aspects of tuberculosis surveillance activities.

Results: The tuberculosis surveillance system was found to have an average performance in usefulness (57/80, 71%), flexibility (30/40, 75%), acceptability (174/264, 66%), data quality (4/6, 67%), and positive predictive value (78/107, 73%), and poor performance in simplicity (863/1452, 59%) and stability (15%, 3/20). In addition, the system also had a good performance in sensitivity (78/81, 96%).

Conclusions: The tuberculosis surveillance system was found to be useful. The flexibility, positive predictive value, and data quality were average. Stability and simplicity were poor. The sensitivity was good. The main weaknesses in the tuberculosis surveillance system include a lack of governmental financial support, a paper-based system, and a lack of regular staff training. Developing an electronic system, securing governmental finances, and training the staff on tuberculosis surveillance are strongly recommended to improve the system performance.

Public Health Surveillance Systems in the Eastern Mediterranean Region: Bibliometric Analysis of Scientific Literature

Saad RK, Al Nsour M, Khader Y, Al Gunaid M. JMIR Public Health Surveill. 2021 Nov 1;7(11):e32639. doi: 10.2196/32639.

Abstract

Background: The Eastern Mediterranean Region (EMR) hosts some of the world's worst humanitarian and health crises. The implementation of health surveillance in this region has faced multiple constraints. New and novel approaches in surveillance are in a constant state of high and immediate demand. Identifying the existing literature on surveillance helps foster an understanding of scientific development and thus potentially supports future development directions.

Objective: This study aims to illustrate the scientific production, quantify the scholarly impact, and highlight the characteristics of publications on public health surveillance in the EMR over the past decade.

Methods: We performed a Scopus search using keywords related to public health surveillance or its disciplines, cross-referenced with EMR countries, from 2011 to July 2021. Data were exported and analyzed using Microsoft Excel and Visualization of Similarities Viewer. Quality of journals was determined using SCImago Journal Rank and CiteScore.

Results: We retrieved 1987 documents, of which 1927 (96.98%) were articles or reviews. There has been an incremental increase in the number of publications (exponential growth, R2=0.80) over the past decade. Publications were mostly affiliated with Iran (501/1987, 25.21%), the United States (468/1987, 23.55%), Pakistan (243/1987, 12.23%), Egypt (224/1987, 11.27%), and Saudi Arabia (209/1987, 10.52%). However, Iran only had links with 40 other countries (total link strength 164), and the biggest collaborator from the EMR was Egypt, with 67 links (total link strength 402). Within the other EMR countries, only Morocco, Lebanon, and Jordan produced ≥79 publications in the 10-year period. Most publications (1551/1987, 78.06%) were affiliated with EMR universities. Most journals were categorized as medical journals, and the highest number of articles were published in the Eastern Mediterranean Health

Journal (SCImago Journal Rank 0.442; CiteScore 1.5). Retrieved documents had an average of 18.4 (SD 125.5) citations per document and an h-index of 66. The top-3 most cited documents were from the Global Burden of Diseases study. We found 70 high-frequency terms, occurring ≥10 times in author keywords, connected in 3 clusters. COVID-19, SARS-CoV-2, and pandemic represented the most recent 2020 cluster.

Conclusions: This is the first research study to quantify the published literature on public health surveillance and its disciplines in the EMR. Research productivity has steadily increased over the past decade, and Iran has been the leading country publishing relevant research. Recurrent recent surveillance themes included COVID-19 and SARS-CoV-2. This study also sheds light on the gaps in surveillance research in the EMR, including inadequate publications on noncommunicable diseases and injury-related surveillance.

The Epidemiology of Meningococcal Meningitis: Multicenter, Hospital-Based Surveillance of Meningococcal Meningitis in Iraq

Al-Sanouri T, Mahdi S, Khader IA, Mahdi A, Dogu A, Amiche A, Iweir S, Qader M, Belbaisi A, AlHilfi R.
IJID Reg. 2021 Oct 28;1:100-106. doi: 10.1016/j.ijregi.2021.10.006. eCollection 2021 Dec.

Abstract

Objectives: Outbreaks of Neisseria meningitidis have reached alarming levels due to the pathogen's ability to cause severe complications, presenting as meningitis or septicemia. Our study reports the results of the first wide-scale surveillance of meningococcal meningitis in Iraq.

Methods: The study included all consecutive cases of clinically suspected meningitis between June 2018 and May 2020 at 18 major hospitals around Iraq (n = 2314). Laboratory analysis of biological samples and real-time polymerase chain reaction tests were conducted to confirm bacterial etiology. Demographical and medical data were collected for statistical analysis.

Results: In total, 370 patients were confirmed to have bacterial meningitis (215 had N. meningitidis, 154 had Streptococcus pneumoniae, and one case had Haemophilus influenzae type b). The most common N. meningitidis serogroup was B (77.7%), followed by W (18.1%) and X (4.2%). The annual incidence rate of N. meningitidis per 100 000 population was 0.86, with the highest being in Karbala (1.52 per 100 000 population). Cases of meningococcal meningitis were more likely to occur in children younger than 15 (OR = 3.526), and in the winter (OR = 1.474).

Conclusions: Continuous surveillance of N. meningitidis is necessary in Iraq, and can only be achieved through improved detection methods. The incidence of meningococcal meningitis in Iraq warrants improved vaccination programs.

Communicable Disease Surveillance in Lebanon During the Syrian Humanitarian Crisis, 2013-2019

Farah Z, Saleh M, Abou El Naja H, Chaito L, Ghosn N.
Epidemiologia (Basel). 2023 Jul 3;4(3):255-266. doi: 10.3390/epidemiologia4030026.

Abstract

Lebanon has been one of the most affected countries by the Syrian humanitarian crisis. The national communicable disease surveillance was enhanced to detect outbreaks among Syrians. In this study, we aim to describe the findings of the

communicable disease surveillance among Syrians in Lebanon, compare it to residents' data, and describe the implemented surveillance activities between 2013 and 2019. During the study period, data on communicable diseases was mainly collected through the routine national surveillance system and an enhanced syndromic surveillance system. Predefined case definitions and standard operating procedures were in place. Data collection included both case-based and disease-specific reporting forms. Descriptive data and incidence rates were generated. Information was disseminated through weekly reports. Activities were conducted in close collaboration with different partners. The most commonly reported diseases were: viral hepatitis A, cutaneous leishmaniasis, mumps, and measles. Hepatitis A incidence increased in 2013 and 2014 among Syrians as well as residents. For leishmaniasis, the incidence increased only among Syrians in 2013 and decreased after that. An outbreak of mumps was reported among Syrians between 2014 and 2016, with a peak in 2015 concomitant with a national outbreak. Outbreaks of measles were reported among Syrians and residents in 2013, 2018, and 2019. The infrastructure of the well-implemented surveillance system in Lebanon has been utilized to monitor the health status of Syrians in Lebanon, early detect communicable diseases among this population, and guide needed preventive and control measures. This highlights the importance of having a flexible surveillance system that can be adapted to emergencies and the importance of sharing results with involved partners.

Infectious Diseases, Polio, Emerging and Re-emerging Infections

Preventing Emerging and Re-emerging Infections in the Eastern Mediterranean Region: Gaps, Challenges, and Priorities

Araj R, Alqasrawi S, Samy S, Alwahdanee G, Wadi J, Mofleh J, Alsanouri T.
JMIR Public Health Surveill. 2019 Oct 9;5(4):e14348. doi: 10.2196/14348.

Abstract

Background: The Eastern Mediterranean Public Health Network, supported by the Biosecurity Engagement Program, contributed significantly to strengthening the preparedness and response to the emerging and re-emerging infections in the region.

Objective: This study aimed to determine the gaps, challenges, and priorities for preventing the emerging and re-emerging infections, with a focus on biosafety and biosecurity in four countries of the region, namely, Egypt, Iraq, Jordan, and Morocco.

Methods: A total of two different methods were used to determine the gaps and priorities for preventing the emerging and re-emerging infections. The first method was a rapid assessment for the preparedness and response to the emerging and re-emerging infections in four countries of the region, with a focus on biosafety and biosecurity. The second method was a face-to-face round table meeting of the participating teams for two days, where the teams from all countries presented their countries' profiles, findings, priorities, and gaps based on the countries' assessments.

Results: The assessment and meeting resulted in several priorities and recommendations for each of the countries in the areas of legislation and coordination, biosafety and biosecurity,

surveillance and human resources, case management and response, infection control and prevention, and risk communication and laboratory capacity.

Conclusions: Many recommendations were relatively consistent throughout, including improving communication or building collaborations to improve the overall health of the country.

Published Research on COVID-19 in the Eastern Mediterranean Region: Bibliometric Analysis

A Collaborative Initiative to Strengthen Sustainable Public Health Capacity for Polio Eradication and Routine Immunization Activities in the Eastern Mediterranean Region

Al Gunaid M, Lami F, Jarour N.
JMIR Public Health Surveill. 2019 Oct 29;5(4):e14664. doi: 10.2196/14664.

Abstract

The many challenges in the Eastern Mediterranean region put the involved countries at risk of polio transmission and affect their ability to meet progress targets in eliminating vaccine-preventable diseases. The Global Health Development (GHD) and Eastern Mediterranean Public Health Network (EMPHNET) are working together on the project "Strengthening sustainable public health capacity in the Eastern Mediterranean region for polio eradication and routine immunization activities" with an overall goal of improving routine immunization, eradicating poliovirus, and controlling/eliminating or eradicating other vaccine-preventable diseases in the Eastern Mediterranean region. The aim of this manuscript is to describe the project and the achievements of GHD/EMPHNET over the last 3 years (2016-2018) to build effective surveillance and immunization systems in the Eastern Mediterranean region through the development of a sustainable and competent public health system to eradicate polio and control/eliminate vaccine-preventable diseases. This project assists the targeted Eastern Mediterranean region countries to build effective surveillance and immunization systems in an effort to expand their capacities to eradicate polio and control/eliminate other vaccine-preventable diseases. The project is streamlined with the Global Polio Eradication Initiative, the Centers for Disease Control and Prevention's Strategic Framework for Global Immunization 2016-2020, and the Polio Eradication and Endgame Strategic Plan 2013-2018. The project also supports the Global Health Security Agenda by focusing on efforts to accelerate progress toward a world safe and secure from infectious disease threats. Project activities were designed to respond to countries' needs and assist them in building their institutional and workforce capacity to effectively plan, implement, and evaluate activities to eradicate polio and strengthen routine immunization activities. The project activities covered a set of areas including surveillance of acute flaccid paralysis and other vaccine-preventable diseases, family and community engagement, workforce capacity building, improvement of data quality, management and use of information systems, use of polio assets to control/eliminate other vaccine-preventable diseases, support of countries to develop national strategies, piloting of innovative initiatives, program evaluation and accountability, and immunization strengthening. The project adopts the Global Polio Eradication Initiative strategies for assisting countries to strengthen routine immunization services, maintain highly sensitive acute flaccid paralysis surveillance, and sustain polio eradication functions.

Estimating Population Immunity to Poliovirus in Jordan's High-Risk Areas

ElhajQasem NS, Al-Abdallat MM.
Hum Vaccin Immunother. 2020 Mar 3;16(3):548-553. doi: 10.1080/21645515.2019.1667727. Epub 2019 Nov 5.

Abstract

A community-based serosurvey was conducted among children ages 6-59 to assess population immunity in Jordan's high-risk areas following the Middle East polio outbreak response. The survey was a two-stage cluster-quota sample with high risk areas as the primary sampling units. High-risk areas included border and hard-to-reach areas, and areas with a high proportion of refugees, mobile communities and/or low coverage during previous immunization campaigns. Population immunity to poliovirus was high overall. In high-risk areas, Type 1 seroprevalence = 98% (95% CI = 96, 99), Type 2 = 98% (95% CI = 96, 99) and Type 3 = 96% (95% CI = 94, 98). Seroprevalence was higher in the refugee camps: Type 1 seroprevalence = 99.6% (95% CI = 97.9, 100); Type 2: 99.6% (95% CI = 97.9, 99.9), and Type 3: 100% (95% CI = 100,100). The vigilance that the Jordan Ministry of Health has placed on locating and vaccinating high-risk populations has been successful in maintaining high population immunity and averting polio outbreaks despite the influx of refugees from Syria.

Trend of Cutaneous Leishmaniasis in Jordan From 2010 to 2016: Retrospective Study

Alhawarat M, Khader Y, Shadfan B, Kaplan N, Iblan I.
JMIR Public Health Surveill. 2020 Mar 24;6(1):e14439. doi: 10.2196/14439.

Abstract

Background: Cutaneous leishmaniasis (CL) is endemic in the Middle East, with countries such as Syria reporting high incidence rates.

Objective: This study aimed to assess the trends in the incidence of cutaneous leishmaniasis (CL) in Jordan from 2010 to 2016.

Methods: This retrospective study included all cases of CL that had been reported to the Leishmaniasis Surveillance System in the Department of Communicable Diseases at the Jordan Ministry of Health during the period from 2010 to 2016. A total of 1243 cases were reported and met the case definition.

Results: A total of 1243 cases (60.65% [754/1243] males and 39.34% [489/1243] females) were diagnosed during the study period. Of this sample, 233 patients (19.13%) were aged <5 years old, 451 (37.03%) were aged between 5-14 years old, 190 (15.60%) were aged between 15-24 years old, and 344 (28.24%) were aged ≥25 years old. Of those, 646 (51.97%) were Jordanians and 559 (44.97%) were Syrians. The average annual incidence rate of 1.70 per 100,000 people between 2010 and 2013 increased to 3.00 per 100,000 people in the years 2014 to 2016. There was no difference in incidence rates between Jordanians and Syrian refugees between 2010 and 2012. After 2012, the incidence rate increased significantly among Syrian refugees from 1.20 per 100,000 people in 2012 to 11.80 per 100,000 people in 2016. On the contrary, the incidence rate did not change significantly among Jordanians.

Conclusions: The incidence rate of leishmaniasis

in Jordan has increased in the last three years because of the influx of Syrian refugees into Jordan. A massive effort toward reservoir and vector control, along with actively pursuing diagnosis in endemic foci, will be helpful. Proper and studious reporting of cases is also a necessity for the eradication of this disease.

Severe Acute Respiratory Infections with Influenza and Noninfluenza Respiratory Viruses: Yemen, 2011-2016

Al Amad MA, Al Mahaqri AA, Al Serouri AA, Khader YS.
Inquiry. 2019 Jan-Dec;56:46958019850731. doi: 10.1177/0046958019850731.

Abstract

In 2010, Yemen started the surveillance for severe acute respiratory infections (SARIs) by establishing 2 sentinel sites in Sana'a and Aden city. This study aims to determine the proportions of influenza and noninfluenza viruses among SARI patients and to determine the severity of SARI and its associated factors. The data of SARI patients who were admitted to SARI surveillance sites at Al Johory hospital in Sana'a and Al Wahdah hospital in Aden city during the period 2011-2016 were analyzed. The proportions of positive influenza viruses (type A, B) and noninfluenza viruses (respiratory syncytial, adenovirus, human parainfluenza, and human metapneumovirus), intensive care unit (ICU) admission rate, and fatality rate among SARI patients were calculated. A total of 1811 of SARI patients were admitted during 2011-2016. Of those, 78% were <15 years old. A total of 89 (5%) patients had influenza viruses and 655 (36%) had noninfluenza viruses. The overall ICU admission rate was 40% and the case-fatality rate was 8%. Infection by influenza type (A, B) and mixed (adenovirus, human parainfluenza) was significantly associated with lower ICU admission. Age <15 years old, infection with influenza B, pre-existence of chronic diseases, and admission to Aden site were significantly associated with higher fatality rate among patients. In conclusion; SARI patients in Yemen had a high ICU admission and case-fatality rates. Influenza type B, chronic diseases, and admission to Aden site are associated with higher fatality rate. Expanding surveillance sites and panel of laboratory tests to involve other pathogens will help to provide accurate diagnosis for SARI etiology and give more comprehensive picture. Training staff for SARI case management will help to reduce severe outcomes.

Risk Factors Associated with a Dengue Fever Outbreak in Islamabad, Pakistan: Case-Control Study

Mehmood A, Khalid Khan F, Chaudhry A, Hussain Z, Laghari MA, Shah I, Baig ZI, Baig MA, Khader Y, Ikram A.
JMIR Public Health Surveill. 2021 Dec 30;7(12):e27266. doi: 10.2196/27266.

Abstract

Background: On October 23, 2016, 79 dengue fever cases were reported from the Union Council Tarlai to Federal Disease Surveillance and Response Unit Islamabad. A team was established to investigate the suspected dengue outbreak.

Objective: The aim of this study was to determine the extent of the outbreak and identify the possible risk factors.

Methods: Active case finding was performed through a house-to-house survey. A case was defined as an acute onset of fever ≥38℃ in a resident of Tarlai from October 2 to November 11, 2016, with a positive dengue virus (nonstructural protein, NS-1) test and any of the two of following

signs and symptoms: retroorbital/ocular pain, headache, rash, myalgia, arthralgia, and hemorrhagic manifestations. A structured questionnaire was used to collect data. Age- and sex-matched controls (1:1) were identified from residents in the same area as cases. Blood samples were taken and sent to the National Institute of Health for genotype identification.

Results: During the active case search, 145 cases of dengue fever were identified by surveying 928 houses from October 23 to November 11, 2016. The attack rate (AR) was 17.0/10,000. The mean age was 34.4 (SD 14.4) years. More than half of the cases were male (80/145, 55.2%). Among all cases, 29% belonged to the 25-34 years age group and the highest AR was found in the 35-44 years age group (35.6/10,000), followed by the 55-64 years age group (35.5/10,000). All five blood samples tested positive for NS-1 (genotype DENV-2). The most frequent presenting signs/symptoms were fever and headache (both 100%). Stagnant water around houses (odds ratio [OR] 4.86, 95% CI 2.94-8.01; P<.001), presence of flower pots in the home (OR 2.73, 95% CI 1.67-4.45; P<.001), and open water containers (OR 2.24, 95% CI 1.36-3.60; P<.001) showed higher odds among cases. Conversely, use of bed nets (OR 0.44, 95% CI 0.25-0.77; P=.003), insecticidal spray (OR 0.33, 95% CI 0.22-0.55; P<.001), door screens (OR 0.27, 95% CI 0.15-0.46; P<.001), mosquito coil/mat (OR 0.26, 95% CI 0.16-0.44; P<.001), and cleanliness of the house (OR 0.12, 95% CI 0.05-0.26; P<.001) showed significant protective effects.

Conclusions: Stagnant water acting as breeding grounds for vectors was identified as the probable cause of spread of the dengue outbreak. Establishment of surveillance and an early reporting system along with use of protective measures against the vector are strongly recommended.

Risk Factors of Dengue Fever in Urban Areas of Rawalpindi District in Pakistan During 2017: A Case Control Study

Awan NJ, Chaudhry A, Hussain Z, Baig ZI, Baig MA, Asghar RJ, Khader Y, Ikram A.
JMIR Public Health Surveill. 2022 Jan 19;8(1):e27270. doi: 10.2196/27270.

Abstract

Background: During August 2017, increased numbers of suspected dengue fever cases were reported in the hospitals of Rawalpindi district. A case control study was conducted to determine the risk factors among urban areas, dengue serotype, and recommend preventive measures.

Objective: The objective of the investigation was to determine the risk factors among urban areas, dengue serotype, and recommend preventive measures.

Methods: A case was defined as having acute febrile illness with one or more of the following symptoms: retro-orbital pain, headache, rash, myalgia, arthralgia, and hemorrhage. The cases were residents of Rawalpindi and were confirmed for dengue fever from August 30, 2017, to October 30, 2017. All NS1 confirmed cases from urban areas of Rawalpindi were recruited from tertiary care hospitals. Age- and sex-matched controls were selected from the same community with a 1:1

ratio. Frequency, univariate, and multivariate analyses were performed at 95% CI with P<.05 considered statistically significant.

Results: Totally 373 cases were recruited. The mean age was 36 (SD 2.9) years (range 10-69 years), and 280 cases (75%) were male. The most affected age group was 21-30 years (n=151, attack rate [AR] 40%), followed by 31-40 years (n=66, AR 23%). Further, 2 deaths were reported (case fatality rate of 0.53%). The most frequent signs or symptoms were fever (n=373, 100%), myalgia and headache (n=320, 86%), and retro-orbital pain (n=272, 73%). Serotype identification was carried out in 322 cases, and DEN-2 was the dominant serotype (n=126, 34%). Contact with a confirmed dengue case (odds ratio [OR] 4.27; 95% CI 3.14-5.81; P<.001), stored water in open containers at home (OR 2.04; 95% CI 1.53-2.73; P<.001), and travel to a dengue outbreak area (OR 2.88; 95% CI 2.12-3.92; P<.001) were the main reasons for the outbreak, whereas use of mosquito repellents (OR 0.12; 95% CI 0.09-0.18; P<.001) and regular water supply at home (OR 0.03; 95% CI 0.02-0.04; P<.001) showed protective effects. The geographical distribution of cases was limited to densely populated areas and all the 5 randomly collected water samples tested positive for dengue larvae.

Conclusions: Stored water in containers inside houses and subsequent mosquito breeding were the most probable causes of this outbreak. Based on the study findings, undertaking activities to improve the use of mosquito repellents and removing sources of breeding (uncovered water stored indoors) are some recommendations for preventing dengue outbreaks.

Seasonal Influenza Vaccine Uptake Among Healthcare Workers in Tertiary Care Hospitals, Bangladesh: Study Protocol for Influenza Vaccine Supply and Awareness Intervention

Awan NJ, Chaudhry A, Hussain Z, Baig ZI, Baig MA, Asghar RJ, Khader Y, Ikram A.
JMIR Public Health Surveill. 2022 Jan 19;8(1):e27270. doi: 10.2196/27270.

Abstract

Background: Healthcare workers (HCWs), such as doctors, nurses, and support staffs involved in direct or indirect patient care, are at increased risk of influenza virus infections due to occupational exposures. Vaccination is the most effective way to prevent influenza. Despite the World Health Organization (WHO) recommendations, Bangladesh lacks a seasonal influenza vaccination policy for HCWs, and thus vaccination rates remain low. The current project aims to investigate the effect of interventions on influenza vaccine awareness and availability of vaccine supply, explore HCWs' knowledge and perceptions about influenza vaccination, understand the barriers and motivators for influenza vaccine uptake, and understand policymakers' views on the practicality of influenza vaccination among HCWs.

Method: We will conduct the study at four tertiary care teaching hospitals in Bangladesh, using a cluster randomized controlled trial approach, with the hospital as the unit of randomization and intervention. The study population will include all types of HCWs.The four different types of intervention will be randomly allocated and implemented in four study hospitals separately. The four interventions will be: i) ensuring the availability of influenza vaccine supply; ii) developing influenza vaccine awareness; iii) both ensuring influenza vaccine supply and developing

influenza vaccine awareness and iv) control arm with no intervention. Both quantitative and qualitative approaches will be applied to assess the intervention effect. We will estimate the Difference in Differences (DID) with 95% CI of the proportion of vaccine uptake between each intervention and control (non-intervention) arm, adjusting for the clustering effect. The qualitative data will be summarised using a framework matrix method.

Discussion: The results of this study will inform the development and implementation of a context-specific strategy to enhance influenza vaccination rates among Bangladeshi HCWs.

Trial registration: Clinicaltrials.gov NCT05521763. Version 2.0 was registered in September 2022, and the first participant enrolled in March 2022. Retrospectively registered.

Tuberculosis Notification in Jordan, 2016–2020

Khader Y, Abaza H, Satyanarayana S, Abu Rumman AS, Alyousfi MN.
Epidemiologia (Basel). 2023 Jul 4;4(3):276-285. doi: 10.3390/epidemiologia4030028.

Abstract

The burden of tuberculosis (TB) in Jordan is largely unknown due to the paucity of high-quality data, under-reporting, and a lack of good quality vital registration system. This study aimed to assess the characteristics of TB patients in Jordan, determine the TB notification rate and assess the trend of TB notification in Jordan between 2016 and 2020. Methods: This study analyzed the TB Surveillance data in Jordan for the period 2016-2020. The obtained data included information on age, gender, nationality, marital status, date of symptoms onset and date of diagnosis, and site of TB. Results: During the period 2016-2020, a total of 1711 patients (989 women and 722 men) were diagnosed with and treated for tuberculosis. The mean (SD) age of patients was 30.1 (17.2) years. Almost half of them (48.4%) were Jordanians. The majority of non-Jordanian patients were from Syria, Philippines, and Bangladesh. Two thirds of patients (66.0%) had pulmonary TB and 34.0% had extra-pulmonary TB. Almost half (50.7%) of the patients were diagnosed within one month of the symptoms' onset. The average annual TB notification rate during 2016-2020 was 3.32 per 100,000 pop (4.08 per 100,000 women and 2.64 per 100,000 men). The average annual standardized notification rate was 4.13 per 100,000 pop (4.52 per 100,000 women and 3.52 per 100,000 men). The overall age-standardized notification rate increased from 3.88 per 100,000 pop in 2016 to 4.58 per 100,000 pop in 2019 and declined to 2.46 per 100,000 pop in 2020. The trend in TB notification differed significantly according to gender. While the notification increased in the last three years among women, it decreased significantly among men. Conclusions: While TB notification increased in the last three years among women, it decreased significantly among men. There is a need to ensure that the national TB plans set clear targets for reducing the burden of TB.

Scaling the Children Immunization App (CIMA) to Support Child Refugees and Parents in the Time of the COVID-19 Pandemic: A Social Capital Approach to Scale a Smartphone Application in Zaatari Camp, Jordan

Khader YS, Maalouf W, Khdair MA, Al-Nsour M, Aga E, Khalifa A, Kassasbeh M, El-Halabi S, Alfven T, El-Khatib Z.
J Epidemiol Glob Health. 2022 Mar;12(1):7-12. doi: 10.1007/s44197-021-00029-x. Epub 2022 Jan 3.

Abstract

Background: Children vaccination is a key intervention for their survival, especially among refugees. Yet, children vaccination registration is done manually in refugees camps and there is no possibility to send reminders to parents to come back on time. We aimed to boost the parental registration of children's vaccination records on a Children Immunization app (CIMA) while also availing the parents with useful parenting skills under COVID-19-related stress.

Methods: We incorporated United Nations Office on Drugs and Crime (UNODC) Parenting Skills under COVID-19 information material, through CIMA in Arabic and English languages. We recruited 1100 children in February-March 2021, through a community health promotion dissemination approach. A team of two nurses from the local population and two volunteers (one trained nurse and one trained social worker), from the camp, was formed. They promoted the CIMA app at two clinics and through households visits in Zaatari refugee camp. Qualitative data on impressions and observations of the interactions with the Zaatari camp community were also collected.

Results: A total of 1100 children, up to 15 months of age, eligible for vaccination were enrolled in CIMA, whereby the staff explained the content of the app in terms of vaccination schedule, health promotion materials for vaccination and parenting skills to their caregivers. During the household visits, the volunteers identified a total of 70 children that have incomplete history of vaccination records (n = 42/70 girls, 60%). Also, opportunities and challenges for scaling the app were documented.

Conclusion: The scaling of CIMA as an innovative means of dissemination of risk and health information in challenging context such as refugee camps was feasible. In the context of vaccination needs for children, in refugee settings, such a need is more eminent, particularly in the context of COVID-19.

Keywords: CIMA; COVID-19; Digital health; Parenting skills; Refugees; Vaccination.

Published Research on COVID-19 in the Eastern Mediterranean Region: Bibliometric Analysis

Saad RK, Abu Khudair S, El Rabbat M, Omar M, Al Nsour M, Khader Y, Rawaf S.
Interact J Med Res. 2022 Jul 19;11(2):e38935. doi: 10.2196/38935.

Abstract

Background: The challenges presented by the COVID-19 pandemic have led to unprecedented global research activity. The Eastern Mediterranean Region (EMR) continues to contribute to COVID-19 research driven by the unique challenges of the region, including the protracted conflicts, already stressed health systems, and serious health and social inequalities.

Objective: This study aims to provide an overview of the publication activities and trends in COVID-19 research in the EMR from the onset of the disease to early 2022 using bibliometric methods.

Methods: A literature search using Scopus was conducted from December 1, 2019, to January 31, 2022, using keywords relevant to COVID-19 and the World Health Organization (WHO) EMR country list. Data were exported and analyzed using Microsoft Excel and the Citation Overview function on Scopus. The quality of journals was determined using SCImago Journal Rank and CiteScore. VOSviewer software was used to visualize the relationships between authors, countries, and key terms used in the retrieved documents.

Results: A total of 6880 documents were retrieved, of which 1805 (26.24%) were from the Kingdom of Saudi Arabia (KSA) and 1782 (25.90%) from Iran, followed by Pakistan, Egypt, and Jordan. Most published documents were affiliated with EMR universities, primarily the Tehran University of Medical Sciences in Iran and King Saud University in KSA (396/6880, 5.76%, and 370/6880, 5.4%, respectively), while only 407 (5.92%) of 6880 documents were associated with universities outside the EMR. For most of the identified publications (5020/6880, 72.97%), no funding source was reported, while King Saud University contributed the largest share (282/1860, 15.16%) of funded publications. Retrieved documents were cited 53,516 times, with an average of 7.78 (SD 34.30). Iran was the EMR country with the most links to other countries (77 links and total link strength of 1279). The 5 authors with the most publications were from KSA, Qatar, and Jordan. There were 290 high-frequency keywords that occurred ≥10 times and were linked in 7 different clusters. The cluster with the most linked keywords was related to epidemiology and mortality. Recent topics included vaccines, vaccination, machine learning, and online learning.

Conclusions: This is the first study to show trends in and project future developments of COVID-19 research activity in the EMR. Authors and institutions who led research on COVID-19 in the region were from Iran and KSA. There were multiple regional collaborative efforts; however, international collaboration was limited. Recently, interest has been shifting toward topics related to vaccination, machine learning, and online learning. Understanding the current state of research is instrumental to future research production, and our study will inform regional research initiatives on emerging concepts, as well as opportunities for collaboration and funding.

Keywords: COVID-19; Eastern Mediterranean Region; bibliometric analysis; bibliometry; depression; epidemiology; health care system; literature; research; research trend; social inequality.

Active Safety Surveillance of Four Types of COVID-19 Vaccines: A National Study from Jordan

Abdel-Qader DH, Abdel-Qader H, Silverthorne J, Kongkaew C, Al Meslamani AZ, Hayajneh W, Ata OMA, Shnaigat W, AbuRuz S, Al Nsour M, Alhariri A, Shnewer K, Da'ssan M, Obeidat NM, Nusair KE, Jalamdeh MS, Hawari F, Khader K, Hakim T, Hammad FA, Al Qudah M, Asad M.
Clin Drug Investig. 2022 Oct;42(10):813-827. doi: 10.1007/s40261-022-01191-1. Epub 2022 Aug 23.

Abstract

Background: Although the Pfizer-BioNTech (BNT162b2), Oxford-AstraZeneca (ChAdOx1 nCoV-19), Sinopharm (BBIBP-CorV), and Sputnik V coronavirus disease 2019 (COVID-19) vaccines have been granted emergency approval in many nations, their safety has never been studied and compared in one community-based study. This study aimed to investigate and compare the incidence, nature, severity, and predictors of adverse events following immunization (AEFIs) with COVID-19 vaccines.

Method: This was a prospective observational study conducted in Jordan between 1 January and 21 September 2021. A team of pharmacists and nurses (n = 407) collected the local and systemic AEFIs of four COVID-19 vaccines by prospectively contacting participants registered in the national vaccination program platform. A red-flag technology was inserted to classify and track rare and serious AEFIs.

Results: This study included 658,428 participants who were vaccinated with 1,032,430 doses; 610,591, 279,606, 140,843, and 1390 participants received the first and second doses of the BNT162b2, BBIBP-CorV, ChAdOx1 nCoV-19, and Sputnik V vaccines, respectively. The overall incidence of AEFIs was 28.8%, and the overall rates of systemic, local, and immediate hypersensitivity AEFIs were 22.2%, 18.8%, and 0.5%, respectively. The highest proportions of immediate hypersensitivity AEFIs and systemic AEFIs were reported after administration of the Sputnik V vaccine and ChAdOx1 nCoV-19 first dose, respectively. The most severe AEFIs were reported after ChAdOx1 nCoV-19 first dose and BNT162b2 second dose. The hospitalization and mortality rates after vaccination were 20 in 10,000 and 1 in 10,000, respectively. Based on red-flag tracking, the top three outcome events were lymphadenopathy (157.9/100,000), anxiety disorders (136.6/100,000), and lower respiratory tract infection (100.9/100,000), with Guillain-Barré syndrome (1.8/100,000), vasculitis (3.0/100,000), and myopericarditis (4.8/100,000) being the least common.

Conclusion: The incidence rates of local, systemic, and immediate hypersensitivity AEFIs of four COVID-19 vaccines occur frequently. High incidence rates of rare and serious AEFIs were reported in this study. Younger participants, females, those who had previously had COVID-19, and smokers were more likely to encounter AEFIs.

The Impact of the COVID-19 Pandemic on Service Delivery for Noncommunicable Diseases in the Eastern Mediterranean Region

Hammerich A, Fouad H, Elrayah EE, Slama S, El-Awa F, El-Berri H, Abdel Latif N.
East Mediterr Health J. 2022 Jul 31;28(7):469-477. doi: 10.26719/emhj.22.053.

Abstract

Background: The COVID-19 pandemic has adversely affected the delivery of noncommunicable diseases (NCDs) services globally as health systems are overwhelmed by the response to the pandemic.

Aims: The World Health Organization (WHO) Regional Office for the Eastern Mediterranean conducted an assessment to evaluate the impact of COVID-19 on NCD-related services, programmes, funding and consideration of NCDs in COVID-19 response.

Methods: Data were collected from countries of the WHO Eastern Mediterranean Region (EMR) in mid-2020 through a web-based questionnaire on NCD services-related infrastructure, policies and plans, staffing, funding, NCD services disruptions and their causes, disruption mitigation strategies, data collection on comorbidity, surveillance, and suggestions for WHO technical guidance. The data were exported into Microsoft Excel and summarized. Countries were grouped according to socioeconomic level.

Results: Nineteen of the 22 countries in the EMR responded: 95% had NCD staff reallocated to support their COVID-19 response. Lower-income countries were less likely to include NCDs in their pandemic response plans and more likely to report disruption of services. The most commonly disrupted services were hypertension management (10 countries 53%), dental care (10 countries 53%), rehabilitation (9 countries 47%), palliative care (9 countries 47%) and asthma management (9 countries 47%).

Conclusion: The COVID-19 pandemic has disrupted the continuity of NCD-related services in EMR countries. The ability to mitigate service disruptions varied noticeably between countries. The mitigation measures implemented included triaging of patients, novel NCD medicines supply chains and dispensing interventions, and the use of digital health and telemedicine. Guidance and support for systems resilience, preparedness and response to crises are recommended.

Keywords: COVID-19 response; NCDs services; WHO Eastern Mediterranean Region.

General Publics' Perception Toward COVID-19 Vaccines in Afghanistan, 2021

Hakim MS, Mansoor GF, Walizada AW, Saeed KMI, Naeemi S, Fazil FA.
Hum Vaccin Immunother. 2023 Aug 1;19(2):2228164. doi: 10.1080/21645515.2023.2228164. Epub 2023 Jul 7.

Abstract

As of August 2021, less than 5% of the total population in Afghanistan has been fully vaccinated against COVID-19. Concerns remain regarding low uptake of the vaccine due to several factors. This study was conducted to understand the perception of the public on COVID-19 and its vaccines in Afghanistan. This was a formative study using qualitative method that included FGDs with vaccination target groups and KIIs, using interview guides in local languages in 12 provinces with 300 participants during May-June 2021. Verbatim transcripts were created, and a deductive thematic analysis was conducted with transcripts after the key themes and sub-themes were developed and reviewed. Totally 24 FGDs with male and female COVID-19 high-risk groups, 12 KIIs with EPI managers, and 12 KIIs with prison heads were conducted. Key themes included awareness and perception about COVID-19, its vaccination, motivators for getting vaccinated, barriers for not getting vaccinated, and sources of information. Awareness about the COVID-19 was high in urban areas compared to rural areas. Almost 60% of the participants considered the COVID-19 vaccine effective. However, participants expressed their concerns regarding rumors and misconceptions on content, source, effectiveness, and side effects of the vaccine in their communities. Based on the study results, many participants expressed accurate knowledge

about the COVID-19 disease and its vaccines. Significant barriers including misinformation, conspiracy theories, and fear of side effects persist. Collaboration between stakeholders and increasing awareness and engagement of communities about the benefits and effectiveness of the vaccines should be considered crucial.

Keywords: Afghanistan; COVID-19 vaccine; General public; perception.

Epidemiology of COVID-19 Among Children and Adolescents in Sudan 2020-2021

Khairy A, Elhussein N, Elbadri O, Mohamed S, Malik EM.
Epidemiologia (Basel). 2023 Jun 23;4(3):247-254. doi: 10.3390/epidemiologia4030025.

Abstract

Children and adolescents account for a small proportion of confirmed COVID-19 cases, with mild and self-limiting clinical manifestations. The distribution and determinants of COVID-19 among this group in Sudan are unclear. This study used national COVID-19 surveillance data to study the epidemiology of COVID-19 among children and adolescents in Sudan during 2020-2021. A cross-sectional study was performed to estimate the reported incidence of children and adolescents with COVID-19; the clinical features; and the mortality among those who tested positive for COVID-19. A total of 3150 suspected cases of COVID-19 infection fulfilled the study criteria. The majority of cases were above 10 years of age, 52% (1635) were males, and 56% (1765) were asymptomatic. The reported incidence rates of COVID-19 among children and adolescents in Sudan was 1.3 per 10,000 in 2021. Fever, cough, and headache were the most frequent symptoms reported among the suspected cases. The case fatality rate was 0.2%. Binary logistic regression revealed that loss of smell was the most significantly associated symptom with a positive test. We recommend further study to identify risk factors. Additionally, we recommend including these age groups in the vaccination strategy in Sudan.

Keywords: COVID-19; Sudan; adolescents; children; epidemiology; odds ratios; reported incidence; surveillance.

Effectiveness of the Pfizer-BioNTech Vaccine against COVID-19-Associated Hospitalizations among Lebanese Adults ≥75 Years Old-Lebanon, April-May 2021

Farah Z, Haddad N, Abou El Naja H, Saleh M, Mrad P, Ghosn N.
Epidemiologia (Basel). 2023 Jun 14;4(2):212-222. doi: 10.3390/epidemiologia4020022.

Abstract

In Lebanon, the nationwide vaccination against COVID-19 was launched in February 2021 using the Pfizer-BioNTech vaccine and prioritizing elderly people, persons with comorbidities, and healthcare workers. Our study aims to estimate the post-introduction vaccine effectiveness (VE) of the Pfizer-BioNTech vaccine in preventing COVID-19 hospitalizations among elderly people ≥75 years old in Lebanon. A case-control study design was used. Case patients were Lebanese, ≥75 years old, and hospitalized with positive PCR results during April-May 2021, and randomly selected from the database of the Epidemiological Surveillance Unit at the Ministry of Public Health (MOPH). Each case patient was matched by age and locality to two controls. The controls were hospitalized, non-COVID-19 patients, randomly selected from the MOPH hospital admission database. VE was calculated for fully (2 doses ≥14

days) and partially vaccinated (≥14 days of the first or within 14 days of the second dose) participants using multivariate logistic regression. A total of 345 case patients and 814 controls were recruited. Half were females, with a mean age of 83 years. A total of 14 case patients (5%) and 143 controls (22%) were fully vaccinated. A bivariate analysis showed a significant association with gender, month of confirmation/hospital admission, general health, chronic medical conditions, main income source, and living arrangement. After adjusting for a month of hospital admission and gender, the multivariate analysis yielded a VE of 82% (95% CI = 69-90%) against COVID-19-associated hospitalizations for those fully vaccinated and 53% (95% CI = 23-71%) for those partially vaccinated. Our study shows that the Pfizer-BioNTech vaccine is effective in reducing the risk for COVID-19-associated hospitalizations of Lebanese elderly people (≥75 years old). Additional studies are warranted to explore VE in reducing hospitalizations for younger age groups, as well as reducing COVID-19 infections.

Keywords: BNT162 vaccine; COVID-19; Lebanon; case–control studies; hospitalization.

Baseline Seroprevalence of SARS-CoV-2 Specific Antibodies in Hot Spot Areas of Great Tunis, up to 3 Months Post Disease Onset in Tunisia

Dhaouadi S, Letaief H, Hechaichi A, Safer M, Moussa R, Bouhali R, Letaief F, Abdelkader L, Ben Salah H, El Mili N, Hammami M, Talmoudi K, Souteyrand Y, Nabeth P, Kouni Chahed M, Bouafif Ép Ben Alaya N.
Epidemiologia (Basel). 2023 Jun 12;4(2):188-201. doi: 10.3390/epidemiologia4020020.

Abstract

The extent of the SARS-CoV-2 circulation and the COVID-19 epidemic in Tunisia three months after virus circulation was unknown. The aim of this study was to determine the extent of SARS-CoV-2 infection among household contacts of confirmed COVID-19 cases living in Hot spot areas of Great Tunis, Tunisia by estimating the seroprevalence of antibodies anti SARS-CoV-2 and to identify factors associated to seroprevalence at the first stage of the pandemic in order to guide decision making and to constitute a baseline for further longitudinal analysis of protective immunity to SARS-CoV-2. The National Observatory of New and Emerging Diseases (ONMNE), Ministry of Health Tunisia (MoH), with the support of the Office of the World Health Organization Representative in Tunisia and the WHO Regional Office for the Eastern Mediterranean (EMRO)), conducted a household cross-sectional survey on April 2020 in Great Tunis (Tunis, Ariana, Manouba and Ben Arous). The study was based on the WHO seroepidemiological investigation protocol for SARS-CoV-2 infection. SARS-CoV-2 specific antibodies (IgG and IgM) were qualitatively detected using a lateral immunoassay that detect SARS-CoV-2 nucleocapsid protein and administered by the interviewers. The included subjects were confirmed COVID-19 cases and their households contacts resided in hot spot areas (cumulative incidence rate ≥ 10 cases/100,000 inhabitants) of Great Tunis. Results: In total, 1165 subjects were enrolled: 116 confirmed COVID-19 cases (43 active cases and 73 convalescents cases) and 1049 household contacts resided in 291 households. The median age of participants was 39.0 with 31 years' interquartile range (Min = 8 months; Max = 96 years). The sex ratio (M/F) was 0.98. Twenty-nine per cent of participants resided in Tunis. The global crude seroprevalence among

household contacts was 2.5% (26/1049); 95% CI 1.6-3.6%, 4.8%; 95% CI 2.3-8.7% in Ariana governorate and 0.3%; 95% CI 0.01%-1.8% in Manouba governorate. In multivariate analysis, the associated factors independently related to seroprevalence were age ≥25 years (aOR = 5.1; 95% CI 1.2-22.0), history of travel outside Tunisia since January 2020 (aOR = 4.6; 95% CI 1.7-12.9), symptomatic illness in the previous four months (aOR = 3.5; 95% CI 1.4-9.0) and governorate of residence (p = 0.02). The low seroprevalence estimated among household contacts in Great Tunis reflect the effect of public health measures early taken (national lockdown, borders closed, remote work), the respect of non-pharmaceutical interventions and the efficacy of COVID-19 contact-tracing and case management at the first stage of the pandemic in Tunisia.

The Role of the Global Health Development/Eastern Mediterranean Public Health Network and the Eastern Mediterranean Field Epidemiology Training Programs in Preparedness for COVID-19

Al Nsour M, Bashier H, Al Serouri A, Malik E, Khader Y, Saeed K, Ikram A, Abdalla AM, Belalia A, Assarag B, Baig MA, Almudarra S, Arqoub K, Osman S, Abu-Khader I, Shalabi D, Majeed Y.
JMIR Public Health Surveill. 2020 Mar 27;6(1):e18503. doi: 10.2196/18503.

Abstract

The World Health Organization (WHO) declared the current COVID-19 a public health emergency of international concern on January 30, 2020. Countries in the Eastern Mediterranean Region (EMR) have a high vulnerability and variable capacity to respond to outbreaks. Many of these countries addressed the need for increasing capacity in the areas of surveillance and rapid response to public health threats. Moreover, countries addressed the need for communication strategies that direct the public to actions for self- and community protection. This viewpoint article aims to highlight the contribution of the Global Health Development (GHD)/Eastern Mediterranean Public Health Network (EMPHNET) and the EMR's Field Epidemiology Training Program (FETPs) to prepare for and respond to the current COVID-19 threat. GHD/EMPHNET has the scientific expertise to contribute to elevating the level of country alert and preparedness in the EMR and to provide technical support through health promotion, training and training materials, guidelines, coordination, and communication. The FETPs are currently actively participating in surveillance and screening at the ports of entry, development of communication materials and guidelines, and sharing information to health professionals and the public. However, some countries remain ill-equipped, have poor diagnostic capacity, and are in need of further capacity development in response to public health threats. It is essential that GHD/EMPHNET and FETPs continue building the capacity to respond to COVID-19 and intensify support for preparedness and response to public health emergencies.

Keywords: COVID-19; outbreak; preparedness; public health; response.

Dentists' Awareness, Perception, and Attitude Regarding COVID-19 and Infection Control: Cross-Sectional Study Among Jordanian Dentists

Khader Y, Al Nsour M, Al-Batayneh OB, Saadeh R, Bashier H, Alfaqih M, Al-Azzam S, AlShurman BA.
JMIR Public Health Surveill. 2020 Apr 9;6(2):e18798. doi: 10.2196/18798.

Abstract

Background: Despite the availability of prevention

guidelines and recommendations on infection control, many dental practices lack the minimum requirements for infection control.

Objective: This study aimed to assess the level of awareness, perception, and attitude regarding the coronavirus disease (COVID-19) and infection control among Jordanian dentists.

Methods: The study population consisted of dentists who worked in private clinics, hospitals, and health centers in Jordan. An online questionnaire was sent to a sample of Jordanian dentists in March 2020. The questionnaire was comprised of a series of questions about dentists' demographic characteristics; their awareness of the incubation period, the symptoms of the disease, mode of transmission of COVID-19 and infection control measures for preventing COVID-19; and their attitude toward treating patients with COVID-19.

Results: This study included a total of 368 dentists aged 22-73 years (mean 32.9 years, SD 10.6 years). A total of 112 (30.4%) dentists had completed a master or residency program in dentistry, 195 (53.0%) had received training in infection control in dentistry, and 28 (7.6%) had attended training or lectures regarding COVID-19. A total of 133 (36.1%) dentists reported that the incubation period is 1-14 days. The majority of dentists were aware of COVID-19 symptoms and ways of identifying patients at risk of having COVID-19, were able to correctly report known modes of transmission, and were aware of measures for preventing COVID-19 transmission in dental clinics. A total of 275 (74.7%) believed that it was necessary to ask patients to sit far from each other, wear masks while in the waiting room, and wash hands before getting in the dental chair to decrease disease transmission.

Conclusions: Jordanian dentists were aware of COVID-19 symptoms, mode of transmission, and infection controls and measures in dental clinics. However, dentists had limited comprehension of the extra precautionary measures that protect the dental staff and other patients from COVID-19. National and international guidelines should be sent by the regional and national dental associations to all registered dentists during a crisis, including the COVID-19 pandemic, to make sure that dentists are well informed and aware of best practices and recommended disease management approaches.

Keywords: COVID-19; dentist; infection; infection control.

Mental Health Support in Jordan for the General Population and for the Refugees in the Zaatari Camp During the Period of COVID-19 Lockdown

El-Khatib, Z., Al Nsour, M., Khader, Y. S., & Abu Khudair, M. (2020). Psychological Trauma: Theory, Research, Practice, and Policy, 12(5), 511–514. https://doi.org/10.1037/tra0000813

Abstract

We have presented an overview about the mental health situation in Jordan during the coronavirus-2019 (COVID-19) in general, and we presented the situation of mental health and the provided support for Syrian refugees at the Zaatari camp.

COVID-19 Crisis in Jordan: Response, Scenarios, Strategies, and Recommendations

Alqutob R, Al Nsour M, Tarawneh MR, Ajlouni M, Khader Y, Aqel I, Kharabsheh S, Obeidat N.
JMIR Public Health Surveill. 2020 Jul 7;6(3):e19332. doi: 10.2196/19332.

Abstract

As of April 12, 2020, a total of 389 cases of coronavirus disease were confirmed in Jordan. To control this imminent threat, Jordan has enforced public health infection prevention and control measures, called for social distancing, seized all forms of inbound and outbound movement and international travel, and enacted the Defence Law that transferred the authority to the Minister of Defence to work and formulate orders according to the situation. In an effort to support the government in anticipating the requirements of the health system in the upcoming period, an in-depth reflection and examination of different scenarios of the disease spread were developed. This viewpoint suggests different strategies and measures for case detection and contact tracing, clinical management of cases, public health system functioning, and civil society organizations' contribution. It is necessary to accelerate containment of the disease to protect the economy and to maintain the continuity of some activities to mitigate the subsequent social, economic, and financial impacts. This requires finding a coping mechanism for a period that may be prolonged until laboratories develop a vaccine. Specifically, it is strongly recommended to promote community health awareness toward public health prevention and control measures, increase the efficiency and comprehensiveness of the epidemiological investigation and active and passive surveillance, and employ technology and digital health solutions to track cases and contacts. It is also recommended to increase and expand resources of intensive care units including respirators, increase the capacity and the number of trained health staff in the area of public health and epidemiology, ensure continued provision of essential public health programs, and mobilize the resources of nongovernmental sectors and donors to provide services for refugees and vulnerable populations.

Keywords: COVID-19; Jordan; infection; pandemic; prevention; public health; virus.

Public Health Strategies for the Gradual Lifting of the Public Sector Lockdown in Jordan and the United Arab Emirates During the COVID-19 Crisis

AlQutob R, Moonesar IA, Tarawneh MR, Al Nsour M, Khader Y.
JMIR Public Health Surveill. 2020 Jul 21;6(3):e20478. doi: 10.2196/20478.

Abstract

In this viewpoint, we present public policies and public health strategies for a gradual lockdown lifting during the coronavirus disease (COVID-19) crisis in two country cases, Jordan and the United Arab Emirates. While managing pandemics is critical in terms of preparedness, response, and recovery, it is equally vital to ensure that the measures for a lockdown exit are both efficient and effective. It is critical to learn from first-wave lessons to systematize responses during times of crisis and execute appropriate public policies and public health strategies. This viewpoint highlights the importance of the following during lockdown lifting: pandemic control, health care capacity, training, scaling up of resources and systems, and priority setting of public policies by acknowledging challenges, developing policy insights, and setting the policy direction. The systematic approaches and leadership thinking required for lifting lockdowns during a crisis include the three Rs:

Readiness, Responses, and Resilience & Recovery.

Keywords: COVID-19; Jordan; United Arab Emirates; exit strategy; health policies; lockdown; public sector; recovery.

Awareness and Preparedness of Field Epidemiology Training Program Graduates to Respond to COVID-19 in the Eastern Mediterranean Region: Cross-Sectional Study

Al Nsour M, Khader Y, Al Serouri A, Bashier H, Osman S.
JMIR Med Educ. 2020 Sep 18;6(1):e19047. doi: 10.2196/19047.

Abstract

Background: The Field Epidemiology Training Program (FETP) is a 2-year training program in applied epidemiology. FETP graduates have contributed significantly to improvements in surveillance systems, control of infectious diseases, and outbreak investigations in the Eastern Mediterranean Region (EMR).

Objective: Considering the instrumental roles of FETP graduates during the coronavirus disease (COVID-19) crisis, this study aimed to assess their awareness and preparedness to respond to the COVID-19 pandemic in three EMR countries.

Methods: An online survey was sent to FETP graduates in the EMR in March 2020. The FETP graduates were contacted by email and requested to fill out an online survey. Sufficient number of responses were received from only three countries-Jordan, Sudan, and Yemen. A few responses were received from other countries, and therefore, they were excluded from the analysis. The questionnaire comprised a series of questions pertaining to sociodemographic characteristics, knowledge of the epidemiology of COVID-19, and preparedness to respond to COVID-19.

Results: This study included a total of 57 FETP graduates (20 from Jordan, 13 from Sudan, and 24 from Yemen). A total of 31 (54%) graduates had attended training on COVID-19, 29 (51%) were members of a rapid response team against COVID-19, and 54 (95%) had previous experience in response to disease outbreaks or health emergencies. The vast majority were aware of the main symptoms, mode of transmission, high-risk groups, and how to use personal protective equipment. A total of 46 (81%) respondents considered themselves well prepared for the COVID-19 outbreak, and 40 (70%) reported that they currently have a role in supporting the country's efforts in the management of COVID-19 outbreak.

Conclusions: The FETP graduates in Jordan, Sudan, and Yemen were fully aware of the epidemiology of COVID-19 and the safety measures required, and they are well positioned to investigate and respond to the COVID-19 pandemic. Therefore, they should be properly and efficiently utilized by the Ministries of Health to investigate and respond to the current COVID-19 crisis where the needs are vastly growing and access to outside experts is becoming limited.

Keywords: COVID-19; Jordan; Sudan; Yemen; awareness; infection; preparedness.

Field Epidemiology Training Programs

Rapid Response Teams' Initiative: Critical Role and Impact on National and Eastern Mediterranean Regional Emergency Management Capacity Building

Araj R, Alqasrawi S, Samy S, Alwahdanee G, Wadi J, Mofleh J, Alsanouri T.
JMIR Public Health Surveill. 2019 Oct 9;5(4):e14348. doi: 10.2196/14348.PMID: 31599734

Abstract

Rapid response teams (RRTs) are essential to contain the harmful effects of emergency situations and to coordinate actions in the fragile environment of the Eastern Mediterranean region (EMR). The Global Health Development and the Eastern Mediterranean Public Health Network (EMPHNET) implemented RRTs to fill the human resources gap and to enable the member states to build their capacity in rapid assessment and response to public health events to reduce human suffering. To build the capacity of the member states in the field of rapid response and to build a strong team of rapid response specialists at the regional level, EMPHNET implemented this initiative at two levels. The first was a basic regional RRT course (July 2012). It was an introductory course for the selected candidates to provide insight and to enhance the knowledge and skills needed to be part of an RRT. The training included 32 participants from nine EMR countries. The course was designed to allow the facilitators and selection committee to select 15 to 20 potential candidates for the advanced RRT course. The second was the advanced RRT course (September 2010 to October 2012) for training the trainers and preparing the RRTs for deployment. A series of RRT training workshops were held, with more than 650 health staff from 12 countries trained. In all workshops that were conducted during 2016-2017, the trainees showed significant improvement in their knowledge and skills.

Keywords: response teams, emergency, management, capacity building, training.

Networking for applied field epidemiology - Eastern Mediterranean Public Health Network (EMPHNET) Conference 2011

Al Nsour M, Kaiser R.
East Mediterr Health J. 2011 Dec;17(12):990-3. doi: 10.26719/2011.17.12.990.PMID: 22355954

Abstract

On the occasion of the second Eastern Mediterranean Public Health Network (EMPHNET) conference that was held from 6-9 December 2011 in Sharm Al Sheikh, Egypt, this article introduces EMPHNET and its role to link Field Epidemiology Training Programs (FETP) in the region. The paper briefly describes the changing epidemiology situation in the region to illustrate the urgent need to strengthen public health systems and to build up the epidemiologist workforce.

The Role of the Global Health Development/Eastern Mediterranean Public Health Network and the Eastern Mediterranean Field Epidemiology Training Programs in Preparedness for COVID-19

Al Nsour M.

JMIR Public Health Surveill. 2020 Apr 8;6(2):e15886. doi: 10.2196/15886.PMID: 32267241

Abstract

The World Health Organization (WHO) declared the current COVID-19 a public health emergency of international concern on January 30, 2020. Countries in the Eastern Mediterranean Region (EMR) have a high vulnerability and variable capacity to respond to outbreaks. Many of these countries addressed the need for increasing capacity in the areas of surveillance and rapid response to public health threats. Moreover, countries addressed the need for communication strategies that direct the public to actions for self- and community protection. This viewpoint article aims to highlight the contribution of the Global Health Development (GHD)/Eastern Mediterranean Public Health Network (EMPHNET) and the EMR's Field Epidemiology Training Program (FETPs) to prepare for and respond to the current COVID-19 threat. GHD/EMPHNET has the scientific expertise to contribute to elevating the level of country alert and preparedness in the EMR and to provide technical support through health promotion, training and training materials, guidelines, coordination, and communication. The FETPs are currently actively participating in surveillance and screening at the ports of entry, development of communication materials and guidelines, and sharing information to health professionals and the public. However, some countries remain ill-equipped, have poor diagnostic capacity, and are in need of further capacity development in response to public health threats. It is essential that GHD/EMPHNET and FETPs continue building the capacity to respond to COVID-19 and intensify support for preparedness and response to public health emergencies.

Keywords: COVID-19, outbreak, preparedness, response, public health.

The Eastern Mediterranean Public Health Network: A Resource for Improving Public Health in the Eastern Mediterranean Region

Al Nsour M.
JMIR Public Health Surveill. 2020 Apr 8;6(2):e15886. doi: 10.2196/15886.PMID: 32267241

Abstract

Countries in the Eastern Mediterranean Region (EMR) face many challenges in terms of improving population health and progressing toward sustainable development goals (SDGs). This paper aims to describe the approach taken by the Eastern Mediterranean Public Health Network (EMPHNET) to help strengthen health systems in the EMR and enable progress toward sustainable development targets, the tools it used, and its achievements. The EMPHNET is a nonprofit organization that has worked to support EMR countries in strengthening their public health systems since its establishment in 2009. The EMPHNET invests in building workforce capacity in applied epidemiology by supporting field epidemiology training programs in more than 10 countries in the EMR, while ensuring country ownership of these programs. The EMPHNET established the Global Health Development (GHD) to maximize support for positive change and SDG progress. As an implementing arm to the EMPHNET, GHD aligns its strategies with national policies and directions. The GHD/EMPHNET

works at the regional, national, and subnational levels and tailors solutions for the local context. Over the past years, the EMPHNET succeeded in partnering with over 13 countries and provided technical assistance to leverage country efforts and maximize resource use. The EMPHNET's Center of Excellence for Applied Epidemiology focuses on building capacity in population health and applied epidemiology. The EMPHNET supports countries in delivering effective public health programs by building capacity and conducting research to prevent and control emerging and reemerging diseases, vaccine-preventable diseases, and noncommunicable diseases. The commitment to the region, together with the increased trust and assertion from the countries, helped GHD/EMPHNET build a strong portfolio, which was made possible by the interconnected effort that continues to nurture and foster better health among people living in the EMR.

Keywords: field epidemiology, public health, training, research.

Evaluation of Advanced Field Epidemiology Training Programs in the Eastern Mediterranean Region: A Multi-Country Study

Al Nsour M, Khader Y, Bashier H, Alsoukhni M.
Front Public Health. 2021 Jul 22;9:684174. doi: 10.3389/fpubh.2021.684174. eCollection 2021.PMID: 34368057

Abstract

Field Epidemiology Training Programs (FETPs) are competency-based training programs aiming to strengthen the epidemiologic capacity of the public health workforce. This study aimed to evaluate the impact of the advanced FETPs in the Eastern Mediterranean region (EMR) and ascertain whether the expected objectives of the programs are met. A descriptive study was conducted based on Kirkpatrick's model for evaluating training programs. Data were collected from FETP graduates and FETP technical advisers on the practices of FETP graduates, their engagement in key areas of field epidemiology, and their perceived skills and capacity to perform such activities. A total of 166 FETP graduates responded to the online survey. Almost two-thirds of FETP graduates reported that they are often engaged in managing public health surveillance systems (n = 119, 71.7%), analyzing the surveillance data (n = 116, 69.9%), training public health professionals (n = 113, 68.1%), investigations on and response to outbreaks (n = 109, 65.7%), and managing staff and resources (n = 106, 63.9%). However, only 28.3% reported that they are often engaged in writing scientific research articles. More than two-thirds of graduates reported that the FETP helped them to perform most of the field epidemiology activities and rate their skills as good. In conclusion, the FETP graduates in the EMR were well engaged in many field epidemiology activities including managing public health surveillance systems, surveillance data analysis, training public health professionals, and investigations on and response to outbreaks. Therefore, the FETPs should continue supporting the graduates to work toward strengthening surveillance systems and investigating outbreaks and to participate in regional and global efforts as part of the Global Health Security.

Keywords: evaluation; field epidemiology; outbreak; public health; surveillance.

Yemen Advanced Field Epidemiology Training Program: An Impact Evaluation, 2021

Abduljalil M, Al Kohlani A, Jumaan A, Al Serouri A.
Epidemiologia (Basel). 2023 Jun 23;4(3):235-246. doi: 10.3390/epidemiologia4030024.PMID: 37489495

Abstrac

This is the first evaluation of the Yemen Field Epidemiology Training Program (Y-FETP) to assess if it met its objectives. We collected data using mixed methods including desk review, a focus group discussion with the Y-FETP staff, in-depth interviews with 21 program stakeholders, and an online survey for the program's graduates. We transcribed/analyzed qualitative data using explanatory quotations and survey data using descriptive methods. The desk review indicated that Y-FETP covers 18 (82%) out of 22 governorates and conducted >171 outbreak investigations, 138 surveillance system analyses/evaluations, 53 planned studies, published >50 articles and had >155 accepted conference Abstracts. Qualitative findings showed Y-FETP helped save lives and reduced morbidity/mortality using building capacities in outbreak response; provided evidence-based data for decision-making; and increased awareness about public health issues. An online survey showed that Y-FETP helped 60 to 80% of graduates conduct outbreak investigations, surveillance analysis/evaluation, manage surveillance systems/projects, engage in public health communication (reports/presentation), and use basic statistical methods. However, the evaluation revealed that Y-FETP is primarily funded by donors; thus, it is not sustainable. Other challenges include low graduate retention and limited training in policy development and management. Y-FETP achieved its main objectives of increasing the number of epidemiologists in the workforce, making a positive impact on public health outcomes.

Keywords: Yemen; advanced; epidemiology; evaluation; field; outcomes; program; training.

Innovative Approaches to Improve Public Health Practice in the Eastern Mediterranean Region: Findings from the Sixth Eastern Mediterranean Public Health Network Regional Conference

Noormal B, Eltayeb E, Al Nsour M, Mohsni E, Khader Y, Salter M, McNabb S, Herrera Guibert D, Rawaf S, Baidjoe A, Ikram A, Longuet C, Al Serouri A, Lami F, Khattabi A, AlMudarra S, Iblan I, Samy S, Bouafif Ép Ben Alaya N, Al-Salihi Q.
JMIR Public Health Surveill. 2019 Mar 7;5(1):e11382. doi: 10.2196/11382.PMID: 30843869

Abstract

Public health professionals in the Eastern Mediterranean region (EMR) have limited access to continuing education, including workshops and conferences in public health. Held under the theme Innovative Approaches: Adapting to the Current EMR Context, the Eastern Mediterranean Public Health Network (EMPHNET) organized and conducted the Sixth EMPHNET Regional Conference from March 26 to 29, 2018. This paper summarizes the key activities including workshops, roundtable discussions, oral and poster presentations, keynote speeches, and side meetings. Before the opening, 5 preconference workshops were held: "Field Epidemiology Training Program (FETP) Accreditation,"

"Innovative Public Health Surveillance," "Human and Animal Brucellosis," "Rapid Response Teams," and "Polio Transition and Routine Immunization." The conference hosted 6 roundtable discussions: "Consolidation of the FETP Network," "One Health to Achieve Global Health Security," "Polio Eradication Efforts and Transition Planning for Measles Elimination," "Mobile Data Collection and Other Innovative Tools to Enhance Decision Making," "Confronting Candida auris: An Emerging Multidrug-resistant Global Pathogen," and "Functioning and Sustainable Country Public Health Emergency Response Operation Framework." One of the conference's key objectives was to provide a space for FETP residents, graduates, and public health professionals to showcase achievements. A total of 421 Abstracts were submitted and after professional review, 34.9% (147/421) were accepted (111 for oral presentations and 36 for poster presentations) and published by Iproceeding. The conference met the primary objectives of showcasing the public health accomplishments and contributions of the EMR, encouraging the exchange of ideas and coordination among stakeholders, and engaging cross-sectoral workforce in producing recommendations for approaching regional and global health concerns. Moreover, the conference presented a unique opportunity for FETPs and other public health professionals from the Mediterranean region to present their significant scientific work and also facilitated networking among professionals. EMPHNET strives to continue to present similar exchange opportunities for public health professionals in the region.

Keywords: capacity building; one health; public health; workshops.

Mass Gatherings

Noncommunicable Disease Emergencies During Arbaeenia Mass Gathering at Public Hospitals in Karbala, Najaf, and Babel Governorates, Iraq, 2014: Cross-Sectional Study

Lami F, Jewad AW, Hassan A, Kadhim H, Alharis S.
JMIR Public Health Surveill. 2019 Sep 30;5(3):e10890. doi: 10.2196/10890.

Abstract

Background: Arbaeenia is the largest religious mass gathering (MG) in Iraq where millions of people from Iraq and many other countries visit Karbala city, south Iraq. MGs are associated with high rates of morbidity and mortality from different noncommunicable diseases (NCDs) such as cardiovascular diseases, diabetes mellitus, and asthma. There is a scarcity of publications that address MGs in Iraq.

Objective: This study aimed to explore the NCD emergencies in public hospitals in Karbala, Najaf, and Babel governorates in Iraq, during the Arbaeenia MG and assess predisposing factors for NCD emergencies.

Methods: The study was conducted from November 27 to December 16, 2014. Data were collected in the pre-event and during MG event from 7 selected hospitals. The pre-event data were collected from emergency room (ER) registers and logbooks, and the data on the MG event were collected daily through direct interview with patients and treating physicians using a structured questionnaire.

Results: In total, 4425 NCD emergencies were recorded. Of these, 80.13% (3546/4425) were collected during the MG event. The NCD emergencies attended at ER hospitals during MG

were severe hypertension (HT), diabetes (hyperglycemia), ischemic heart disease (IHD), asthma, and pulmonary edema. The load of NCD emergencies and the daily average emergencies increased 4-fold and 2-fold during the MG event, respectively. Most of the NCD emergencies were treated at ER departments, and a few were hospitalized. Intense physical activities and poor adherence to diet and medication were risk factors for IHD, severe HT, and hyperglycemic diabetes emergencies. Exposure to noxious gases or fumes and recent respiratory infections were risk factors for asthma emergencies.

Conclusions: As the pilgrims approached Karbala city during the Arbaeenia MG, the hospitals on the roads leading to the city experienced an increased load of patients because of different NCD emergencies. Although hospitals should be equipped with the necessary supplies, health education for pilgrims is mandatory, particularly on the factors that can exacerbate their diseases.

Keywords: Iraq; noncommunicable diseases; mass gathering.

Real-Time Surveillance of Infectious Diseases and Other Health Conditions During Iraq's Arbaeenia Mass Gathering: Cross-Sectional Study

Lami F, Hameed I, Jewad AW, Khader Y, Amiri M.
JMIR Public Health Surveill. 2019 Oct 4;5(4):e14510. doi: 10.2196/14510.

Abstract

Background: The most common religious mass gatherings in the Middle East are the Hajj at Mecca in Saudi Arabia, which occurs annually, and the Arbaeenia in Karbala. The importance of developing public health surveillance systems for mass gatherings has been previously emphasized in other reports.

Objective: This study aimed to describe the common illnesses and health conditions affecting people during the Arbaeenia mass gathering in Iraq in 2016.

Methods: A total of 60 data collectors took part in the field data collection over a period of 11 days, from November 12, 2016 to November 22, 2016. Data were collected from 20 health outlets along the major route from Najaf to Karbala (10 health facilities in each governorate). Two digital forms, the Health Facility Survey and the Case Survey, were used for data collection.

Results: A total of 41,689 patients (33.3% female and 66.7% male) visited the 20 health care facilities over a period of 11 days from November 12, 2016 to November 22, 2016. More than three quarters of patients (77.5%; n=32,309) were between 20-59 years of age, more than half of patients were mainly from Iraq (56.5%; n=23,554), and about 38.9% (n=16,217) were from Iran. Patients in this study visited these health care facilities and presented with one or more conditions. Of a total 41,689 patients, 58.5% (n=24,398) had acute or infectious conditions and symptoms, 33.1% (n=13,799) had chronic conditions, 23.9% (n=9974) had traumas or injuries, 28.2% (n=11,762) had joint pain related to walking long distances, and 0.3% (n=133) had chronic dermatologic conditions.

Conclusions: The Arbaeenia mass gathering in 2016 exerted a high burden on the Iraqi health care

system. Therefore, efforts must be made both before and during the event to ensure preparedness, proper management, and control of different conditions.

Keywords: Arbaeenia; Iraq; mass gathering; surveillance.

Assessment of Temporary Community-Based Health Care Facilities During Arbaeenia Mass Gathering at Karbala, Iraq: Cross-Sectional Survey Study

Lami F, Hameed I, Arbaji A.
JMIR Public Health Surveill. 2019 Oct 4;5(4):e10905. doi: 10.2196/10905.

Abstract

Background: Arbaeenia mass gathering (MG) in Karbala, Iraq, is becoming one of the largest MGs in the world. The health care infrastructure in Iraq is inadequately prepared to serve the health needs of the millions of pilgrims.

Objective: This study aimed to describe the temporary health care facilities installed and run by the local community to provide health care services to Arbaeenia pilgrims in Karbala, Iraq.

Methods: A survey was conducted in all community-based health care facilities located along part of Najaf to Karbala road within Karbala governorate. A structured questionnaire was answered through an interview with the workers and direct observation. Data were collected on staff profile, type of services provided, use of basic infection control measures, medical equipment, drugs and supplies, and the most commonly encountered medical problems.

Results: The total number of health care facilities was 120, staffed by 659 workers. Only 18 (15.0%, 18/120) facilities were licensed, and 44.1% (53/120) of the workers were health professionals. The health care workers provided different services including dispensing drugs (370/1692, 21.87%), measuring blood pressure and blood sugar (350/1692, 20.69%), and caring for wounds and injuries (319/1692, 18.85%). Around 97% (116/120) health facilities provided services for musculoskeletal disorders and only 16.7% (20/120) provided services for injuries. The drugs available in the clinic were analgesics, drugs for gastrointestinal and respiratory diseases, and antibiotics, with an availability range of 13.3% to 100.0%. Infection control practices for individual protection, environmental sanitation, and medical waste disposal were available in a range of 18.1% to 100.0%.

Conclusions: Community-based health care facilities experienced a profound shortage of trained human resources and medical supplies. They can significantly contribute to health services if they are adequately equipped and follow standardized operation procedures.

Keywords: Arbaeenia mass gathering; Iraq; community-based health care.

Syndromic Surveillance of Communicable Diseases in Mobile Clinics During the Arbaeenia Mass Gathering in Wassit Governorate, Iraq, in 2014: Cross-Sectional Study

Lami F, Asi W, Khistawi A, Jawad I.
JMIR Public Health Surveill. 2019 Oct 7;5(4):e10920. doi: 10.2196/10920.

Abstract

Background: Arbaeenia is the largest religious mass gathering organized annually in Karbala city, Iraq, and is attended by 8-14 million people. Outbreaks of communicable diseases are a

significant risk due to overcrowding and potential food and water contamination. Syndromic surveillance is often used for rapid detection and response to disease outbreaks.

Objective: This study was conducted to identify the main communicable diseases syndromes among pilgrims during the Arbaeenia mass gathering in Wassit governorate, Iraq, in 2014.

Methods: This cross-sectional study was conducted in the 40 mobile clinics established within Wassit governorates along the road to Karbala during the Arbaeenia mass gathering. Six communicable disease syndromes were selected: acute watery diarrhea, bloody diarrhea, fever and cough, vomiting with or without diarrhea, fever and bleeding tendency, and fever and rash. A simple questionnaire was used to directly gather basic demographics and the syndromic diagnosis from the attendees.

Results: A total of 87,865 patients attended the clinics during the 10-day period, with an average of 219 patients/clinic/day. Approximately 5% (3999) of the attendees had communicable diseases syndromes: of these, 1693 (42%) had fever and cough, 1144 (29%) had acute diarrhea, 1062 (27%) presented with vomiting with/without diarrhea, and 100 (2%) had bloody diarrhea. The distribution of the syndromes did not vary by age or gender. Stool specimen cultures for Vibrio cholerae performed for 120 patients with acute diarrhea were all negative.

Conclusions: Syndromic surveillance was useful in determining the main communicable diseases encountered during the mass gathering. Expansion of this surveillance to other governorates and the use of mobile technology can help in timely detection and response to communicable disease outbreaks.

Keywords: Arbaeenia; Iraq; communicable diseases; mass gathering; syndromic surveillance.

Knowledge, Attitude, and Practices of Food Handlers on Food Safety and Personal Hygiene During Arbaeenia Mass Gathering, Baghdad, Iraq, 2014: Cross-Sectional Study

Lami F, Radhi F, Al Dahhan S, Hashim RA, Mahmood H, Araj R, Arbaji A.
JMIR Public Health Surveill. 2019 Oct 9;5(4):e10922. doi: 10.2196/10922.

Abstract

Background: Millions of pilgrims attend Arbaeenia mass gathering (MG) in Iraq each year. Thousands of individuals work voluntarily at temporary rest areas (locally called Mawakib), distributed in most of Iraq governorates, to provide food and other services to the MG attendees. The potential for improper handling of food at Mawakib increases the risk of waterborne and foodborne diseases.

Objective: This study was aimed to assess the knowledge, attitude, and practices (KAP) of food handlers in Mawakibs in Baghdad city during Arbaeenia MG.

Methods: A random sample of 100 Mawakibs was selected in Baghdad, 50 from the eastern side (Rusafa) and 50 from the western side (Kerkh), and five food handlers were randomly selected from each Mawakib. A questionnaire was used to collect demographic data and KAP for food safety and personal hygiene. The questionnaire included 25 questions addressing knowledge, 10

addressing attitudes, and 14 addressing practices of the food handlers with respect to food safety and personal hygiene. Questions on knowledge and attitudes were answered through direct interview with the food handlers, whereas the questions on practices were answered through direct observation while handling or serving the food. SPSS version 20 (IBM SPSS Statistics 20) was used for data analysis and describing proportions.

Results: There was a varied knowledge of food safety practices among the individuals interviewed. On a scale of 3, the overall average score for both the attitude and practices for food safety and personal hygiene was 2, which corresponds to fair attitude and practices. The attitudes varied significantly by location, age group, and education, whereas the practices varied by location, age groups, employment, and previous experiences.

Conclusions: The food handlers had unsatisfactory attitudes and practices toward food handling and personal hygiene. Their participation in food handling at Mawakib carries a potential risk of spreading foodborne and waterborne diseases. All individuals intending to serve in Mawakib as food handlers should be licensed from the Ministry of Health after completing a formal training in food safety and personal hygiene.

Keywords: Iraq; attitudes; food; hygiene; knowledge.

Disease Burden on Health Facilities in Governorates South of Karbala During the Arbaeenia Mass Gathering in Iraq in 2014: Cross-Sectional Study

Hantoosh H, Lami F, Saber B.
JMIR Public Health Surveill. 2019 Oct 16;5(4):e10917. doi: 10.2196/10917.

Abstract

Background: Millions of Iraqi pilgrims travel annually from the southern governorates to Karbala and pass through Thiqar, Muthana, and Diwania Governorates to join the Arbaeenia mass gathering event. During this event, participants are at high risk for diseases and death and stifle local health care resources. In addition, the mass gathering causes considerable burden on health facilities in the hosting localities.

Objective: This study aims to estimate the disease burden on health facilities caused by the pilgrims passing through Thiqar, Muthana, and Diwania Governorates en route to Karbala in Iraq.

Methods: This cross-sectional study was conducted on all health facilities in three governorates (Thiqar, Muthana, and Diwania) situated along the southern way to Karbala from Basra. The study started on December 11, 2014, and ended on December 24, 2014. The morbidity and mortality were collected from surveillance logbooks and death registers. Drug purchase data were obtained from the personnel in charge of the pharmacies. The study period was divided into three phases on the basis of the timing of the mass gathering event: pre-event, the event, and postevent.

Results: There were 884,834 incidents reported during the study. The majority of incidents were reported during the event phase (95%) and were attended mostly at mobile clinics (77%). The average daily incidents during the pre-event, event, and postevent phases were 4300, 56,040, and 4548 incidents, respectively. Musculoskeletal disorders were the most common illness reported (55%). The average number of daily deaths was 43, 36, and 45 during the pre-event, event, and postevent, respectively, and these values did not differ significantly. Cardiovascular diseases

(43.5%), injuries (29.8%), and respiratory illnesses (12%) were the leading causes of deaths. Approximately US $1.3 million was spent on drug purchases during this mass gathering in the three governorates.

Conclusions: The Arbaeenia mass gathering causes a tremendous disease and economic burden on governorates that pilgrims pass through to attend this mass gathering in Karbala. Although Iraq's Ministry of Health is aware of the high burden of this mass gathering on the health facilities in these governorates, more work is needed to ensure quality services during the event.

Keywords: Arbaeenia; Iraq; disease burden; mass gathering.

Iraq Mass Gathering Preparedness and Public Health Recommendations

Al Nsour M.
JMIR Public Health Surveill. 2020 Apr 8;6(2):e15886. doi: 10.2196/15886.

Iraq is the host to the largest Eastern Mediterranean Region's religious mass gathering. In the last decade, the number of people visiting Karbala on the anniversary of Imam Husseyn's death has increased considerably from year to year. According to 2014 estimates, Karbala City has a local population of approximately 1.1 million individuals in an area of approximately 43.7 km2 [1]. Millions of people gather at the "Arbaeenia" gathering in Karbala to mark this important event. The approximate number of visitors has increased from 3 million individuals in 2003 to 25 million in 2016, with about 20% coming from countries external to Iraq [2].

As of the 2014 anniversary, preventive measures such as the request for visit permit and proof of vaccination upon entry to Iraq were not in place. However, many sectors are involved in the gathering's proceedings once the city starts welcoming its visitors. The Operations Department at the Iraq Ministry of Health (MOH) and the Health Directorates in Karbala, Najaf, Babel, Aldwanya, Thi Qar, Wassit, and Baghdad (ie, Karkh and Rusafah) contribute to the local planning before the event. Medical services are provided by primary health care centers from the MOH and governmental and nongovernmental health clinics. The local municipalities provide water and hygiene services, and the Sacred Al Abbas Mosque and the Sacred Al Husayn Mosque nongovernmental authorities provide accommodations, covers, food, and medical services.

In the face of the high volume of population movement, the changing date of the anniversary, and short latency, public health authorities need to have preparedness plans and resources to effectively manage the additional pressure on the country's system. Although the Iraq Ministry of Health has been passing the test of safely caring for the large number of visitors every year, it is presented with challenges of providing quality health services and mitigating the increasing risks.

In reviewing the literature of Iraqi mass gatherings, it becomes apparent that the scale of the health strain is not quantified, and the gaps are not identified. In view of the challenges presented by this mass gathering, whether they are related to quantity or quality of services provided to attendees, public authorities and supporting organizations should be ready to accommodate

masses throughout the event including pre-event preparation and postevent activities.

Keeping abreast of the economic and political situation in Iraq, the Eastern Mediterranean Public Health Network (EMPHNET) with Iraq Ministry of Health and support from the US Department of State's Biosecurity Engagement Program and Centers for Disease Control and Prevention launched a mass gathering project for the Field Epidemiology Training Program and public health professionals working at the Iraq Ministry of Health from different public health departments. The major aim of this mass gathering project was to strengthen the public health system efforts in accommodating masses and reducing morbidity and mortality during the anniversary of Imam Husseyn's death. The project encompassed three phases and resulted in eight manuscripts. The first phase was conducting an introductory workshop to public health in mass gatherings for field epidemiologists and other health professionals. The second phase focused on the implementation of operational research and holding a policy brief meeting on the findings of the research. The third phase entailed conducting a scientific writing workshop in preparation for manuscripts on the research carried out around the 2014 anniversary of Imam Husseyn's death.

This e-collection [3-10] of the EMPHNET Iraq Mass Gathering Project (2014-2015) was published to promote better readiness and identify any health risk management gaps. Additionally, these publications will help proliferate the much-needed research and literature on public health issues related to mass gathering in the Middle East. The publications included were peer reviewed by Baghdad University, EMPHNET, and other external technical experts. The articles presented in this supplement will hopefully provide data to initiate better preparedness and planning for future mass gatherings in Iraq.

Injuries Reported by Selected Health Facilities During the Arbaeenia Mass Gathering at Babel Governorate, Iraq, 2014: Retrospective Records Analysis

Chitheer A, Lami F, Radhi A, Arbaji A.
JMIR Public Health Surveill. 2020 May 28;6(2):e10877. doi: 10.2196/10877.

Abstract

Background: Arbaeenia is the largest religious mass gathering in Iraq. The conditions associated with mass gatherings result in high rates of injury. There have been no prior studies on injuries during the Arbaeenia mass gathering.

Objective: This study describes the injuries observed during the Arbaeenia mass gathering in Babel Governorate in Iraq between November 24 and December 14, 2014.

Methods: The study was conducted in Babel Governorate at the emergency departments of six public hospitals and two major temporary medical units that were located along the three roads connecting the Middle and Southern Iraqi governorates. We used the Iraq Injury Surveillance System modified form to collect information on injured patients treated in the selected facilities. Data on fatal injuries was obtained from the coroner's office. The following data were collected from the patients: demographics, outcome of injury, place and time of occurrence, mode of evacuation and medical care before arriving at the hospital, duration of travel from place of occurrence to hospital, disposition of non-fatal injury, cause and mode of injury, and whether the injury occurred in connection with the Arbaeenia mass gathering.

Results: Information was collected on 1564 injury cases, of which 73 were fatal. About half of the reported nonfatal injuries, 687/1404 (48.9%), and a quarter of fatalities, 18/73 (25%) were related to the Arbaeenia mass gathering (P<.001). Most of the reported injuries were unintentional, 1341/1404 (95.51%), occurred on the street, 864/1323 (65.6%), occurred during the daytime 1103/1174 (93.95 %). Most of those injured were evacuated by means other than ambulance 1107/1206 (91.79%) and did not receive pre-hospital medical care 788/1163 (67.7%). Minor injuries 400/1546 (25.9%) and traffic accidents 394/1546 (25.5%) were the most common types of injuries, followed by falls 270/1546 (17.5%). Among fatal injuries, traffic accidents 38/73 (52%) and violence 18/73 (25%) were the leading causes of death. Mass gathering injuries were more likely to occur among individuals aged 21-40 years (odds ratio [OR] 3.5; 95% CI 2.7-4.5) and >41 years (OR 7.6; 95% CI 5.4-10.6) versus those <21 years; more likely to be unintentional than assault (OR 5.3; 95% CI 1.8-15.5); more likely to happen on the street versus at home (OR 37.7; 95% CI 22.4-63.6); less likely to happen at night than during the day (OR 0.2; 95% CI 0.1-0.4); and less likely to result in hospital admission (OR 0.5; 95% CI 0.3-0.7).

Conclusions: The study shows that most injuries were minor, unintentional, and nonfatal, and most people with injuries had limited access to ambulance transportation and did not require hospitalization.

Keywords: Injury; Karbala, Iraq; mass gathering.

Reproductive Health

Mapping 123 Million Neonatal, Infant and Child Deaths between 2000 and 2017

Burstein, R.

Nature. 2019 Oct;574(7778):353-358. doi: 10.1038/s41586-019-1545-0. Epub 2019 Oct 16.

Abstract

Since 2000, many countries have achieved considerable success in improving child survival, but localized progress remains unclear. To inform efforts towards United Nations Sustainable Development Goal 3.2-to end preventable child deaths by 2030-we need consistently estimated data at the subnational level regarding child mortality rates and trends. Here we quantified, for the period 2000-2017, the subnational variation in mortality rates and number of deaths of neonates, infants and children under 5 years of age within 99 low- and middle-income countries using a geostatistical survival model. We estimated that 32% of children under 5 in these countries lived in districts that had attained rates of 25 or fewer child deaths per 1,000 live births by 2017, and that 58% of child deaths between 2000 and 2017 in these countries could have been averted in the absence of geographical inequality. This study enables the identification of high-mortality clusters, patterns of progress and geographical inequalities to inform appropriate investments and implementations that will help to improve the health of all populations.

An Overview of the Sexual and Reproductive Health Status and Service Delivery among Syrian Refugees in Jordan, Nine Years since the Crisis: A Systematic Literature Review

Amiri M, El-Mowafi IM, Chahien T, Yousef H, Kobeissi LH.

Reprod Health. 2020 Oct 28;17(1):166. doi: 10.1186/s12978-020-01005-7.

Abstract

Background: The Syrian refugee crisis has led to massive displacement into neighboring countries including Jordan. This crisis has caused a significant strain on the sexual and reproductive health (SRH) services to the host communities and Syrian refugees. The Minimum Initial Service Package (MISP) is a standard package of services that should be implemented at the onset of an emergency. Due to their importance in protracted humanitarian crisis, this systematic review aimed to assess the utilization of SRH and MISP after 9 years of the crisis.

Methods: We searched PubMed, Medline/Ovid and Scopus for both quantitative and qualitative studies from 1 January 2011 to 30 November 2019. Our search included both free text key words and Medical Subject Headings (MeSH) for various forms and acronmym of the following terms: (Sexual and) Reproductive Health, Sexual/Gender-based/Family/Intimate partner violence, Minimum Initial Service Package, MISP, Women, Girls, Adolescents, Syrian, Refugee, Jordan, Humanitarian crisis, War, (armed) conflict, and Disaster. Boolean operators and star truncation (*) were used as needed. We further conducted an in-depth review of the available grey literature published during the same timeframe. Using a narrative synthesis approach, two authors independently extracted and analyzed data from published papers. After removal of duplicates, screening, and assessing for eligibility of 161 initially identified citations, 19 papers were selected for review.

Results: Findings from this review indicated a number of barriers to access, utilization, and implementation of SRH services, including lack of reliable information on sexual and gender-based violence (SGBV), aggravation of early marriages by crisis setting, gaps in the knowledge and use of family planning services, inadequate STIs and HIV coverage, and some issues around the provision of maternal health services.

Conclusion: The findings from this review are suggestive of a number of barriers pertaining to access, utilization, and implementation of SRH services. This is especially true for transitioning from MISP to comprehensive SRH services, and particularly for refugees outside camps. Following are needed to address identified barriers: improved inter-agency coordination, better inclusion/engagement of local initiatives and civil societies in SRH services delivery, improved quality of SRH services, adequate and regular training of healthcare providers, and increased awareness of Syrian women and adolescent girls. Also, more implementing research is required to identify ways to transition SRH provision from the MISP to comprehensive care for the Syrian refugee population in Jordan.

Keywords: Family violence; Gender-based violence; Humanitarian settings; Intimate partner violence; Minimum initial service package; Reproductive health; Sexual and reproductive health; Sexual violence; Syrian crisis; Syrian refugees.

Midwives and Women's Perspectives on Family Planning in Jordan: Human Rights, Gender Equity, Decision-Making and Power Dynamics

Al-Sheyab NA, Al Nsour M, Khader YS, Yousif H, Alyahya MS, Taha H, Bardus M, Al Kattan M, Amiri M.
Heliyon. 2021 Aug 14;7(8):e07810. doi: 10.1016/j.heliyon.2021.e07810. eCollection 2021 Aug.

Abstract

Objectives: This study explored midwives' and Jordanian and Syrian women's perceptions towards family planning (FP) counseling and the process of FP decision making mechanism to provide evidence for expanding the access and improving the quality and utilization of FP services in Jordan.

Methods: Explorative qualitative study that purposively recruited 24 women for 4 focus group discussions (FDGs) and 17 midwives for in-depth interviews from two governorates in Jordan. The transcribed narratives were subjected to deductive content analysis.

Results: Two themes were extracted from the narratives: The power dynamics in FP decision-making process and the barriers and motivators of FP decision making. The first theme was built on the perceived influence of gender equity and social pressures and gender-based violence on FP decision making. The second theme was constructed on the respondents' beliefs about reproductive health including FP as a human right and their perceptions of the obstacles and facilitators of FP Decision Making. Overall, husbands have an influential role, and perhaps the final say, in deciding whether to use FP services or not as well as the type of method to use. However, wives must initiate the family planning conversation with her husband and do so in a way that will be pleasing to the husband. Whether the husband agrees with the wife's idea to use family planning and gives her permission and funds for use, depends largely on her presentation of the idea, her husband's education level, and his personality.

Conclusions: This study revealed several relevant issues that play a role in Jordanian and Syrian women's decision to seek FP services. While cultural and social norms related to family planning and decision making continue to exert pressure on women, women have a deep interest in continuing to broaden their knowledge about family planning services. Engaging men and incorporating digital technology in family planning counselling has the potential to improve shared FP decision-making process among Jordanian couples and overcome some of the barriers.

Other

Evaluation of Blood Transfusion Services in Public and Private Blood Bank Centers, Sana'a Capital, Yemen

Ghaleb YA, Al-Somainy AA, Alamad MA, Al Serouri AA, Khader YS.
Inquiry. 2019 Jan-Dec;56:46958019870943. doi: 10.1177/0046958019870943.PMID: 31517552

Abstract

The aim of this study was to evaluate blood transfusion services (BTS) at the main blood banks (BBs) of the Sana'a Capital. The 4 main BBs at Sana'a Capital were evaluated according to the safe World Health Organization BTS standards. Qualitative and quantitative data were collected

using semi-structured questionnaires covering 6 components: activities, quality assurance system (QAS) and training, donation, grouping and compatibility testing, components, and screening for transfusion-transmitted infections (TTIs). An overall mean percent score for BTS was calculated where <60% is considered unsatisfactory, 60% to 79.9% satisfactory, and ≥80% highly satisfactory. The 4 BBs screen for HIV, hepatitis B, and hepatitis C and perform all functions except therapeutic transfusion. While 75% of the staff in BBs had received training in biosafety and half of the staff had received training in Standard Operating Procedures (SOPs), no QAS in place at any of the 4 BBs. The 4 BBs depended on 71% of their transfusions on family donors. Two BBs do not perform reverse grouping and do not keep patient/donor samples for the required minimum 5 days. Only one BB achieved an overall high satisfactory score and one achieved a satisfactory score. Findings highlight the increasing challenges facing BTS in Sana'a Capital especially the lack of therapeutic transfusion, poor QAS, and predominant dependence on the family donors. Therefore, there is a need to develop and train staff on QAS and to increase awareness among public on importance of voluntary donation. A wider scale evaluation of BTS in Sana'a is recommended.

Keywords: Yemen; blood transfusion services; evaluation; field epidemiology training program; quality

Outbreak Investigation of a Multipathogen Foodborne Disease in a Training Institute in Rabat, Morocco: Case-Control Study

Moumni Abdou H, Dahbi I, Akrim M, Meski FZ, Khader Y, Lakranbi M, Ezzine H, Khattabi A. JMIR Public Health Surveill. 2019 Sep 25;5(3):e14227. doi: 10.2196/14227.PMID: 3157394

Abstract

Background: On June 18, 2017, the public health service was alerted about 43 students in the training institute in Rabat who were admitted to the emergency room for acute gastroenteritis following the uptake of a meal a day before.

Objective: This study aimed to investigate the foodborne disease outbreak by confirming the outbreak, identifying the source of contamination, and recommending control measures.

Methods: We conducted a case-control study. Cases and controls were selected in a ratio of 1:1. We defined a case as any member of the training institute who attended the Ramadan buffet in the institute's restaurant and who had presented, in the weekend of June 16 to 20, 2017, symptoms of diarrhea or vomiting with at least one of the following signs: abdominal pain, fever, headache, nausea, and dizziness. A control was defined as anyone who attended the Ramadan buffet in the institute's restaurant but had not presented any symptoms from June 16 to 20, 2017. We conducted a bivariate and multivariable analysis. Stools of ill students were collected, and a food specimen was collected for bacterial testing.

Results: A total of 50 cases and 50 controls were selected. Among the cases, males were predominant (43/50, 86%); the median age was 21 years. A total of 47 cases sought medical care. There were no hospitalizations and no deaths. The episode was short with an estimated average incubation period of 9 hours. The epidemic curve oriented toward a common source of contamination. Among food items, briwates were strongly associated with the illness with an odd ratio of 14.23 (95% CI 5.04-40.04; P<.001).

Laboratory testing of briwates showed presence of Escherichia coli O157 and Staphylococcus aureus.

Conclusions: This foodborne disease outbreak was likely caused by briwates that was contaminated with S aureus and E coli. We recommended strengthening hygiene measures. Food handling techniques should be taught as part of continuous professional development for food handlers.

Keywords: Escherichia coli; Staphylococcus; disease outbreaks; foodborne diseases.

The Effect of Air Pollution on Cardiovascular Diseases in the Eastern Mediterranean Region: A Systematic Literature Review

Prof. Yousef S Khader, Dr. Mohammad Alhwarat, Dr. Nour Abdo, Dr. Mostafa Abdelrahman, Dr. Faris N Gharaibeh and Dr. Ibrahim Iblan

Abstract:

Objectives: To assess the risk of cardiovascular diseases associated with air pollution in Eastern Mediterranean Region (EMR) by summarizing the existing knowledge from previous studies in the region and to identify knowledge and research gaps to support further research efforts. Methods: Literature search between January 2000 and June 2016 using the combinations of keywords and hand search resulted in 366 articles published in the EMR. Of those, 13 studies met the inclusion/exclusion criteria. Results: Thirteen studies from few countries in EMR have examined the effect of air pollution on cardiovascular disease and met the inclusion criteria. Most of studies were conducted in Iran. The most common study designs were ecological time series and cross-sectional studies. The reviewed articles showed that air pollution has a significant association with cardiovascular morbidity, especially in high risk groups, but not with mortality. For the majority of reviewed studies, limitations do exist in all studies even well conducted ones. The limitations and shortcomings that arise from inappropriate study designs, poor assessment of exposure and outcomes, questionable sources of data, lack of standardized methods, poor adjustment of confounders, limited geographical area studies, small sample sizes, poor statistical modeling, and not testing for possible interactions between exposures. Conclusion: Air pollution has a significant association with cardiovascular morbidity, especially in high risk groups, but not with mortality in the reviewed studies. However, the limited number of studies in few EMR countries makes it difficult to construct evidence on the effect of air pollution on cardiovascular diseases in the region. The reviewed studies did not sufficiently represent the different geographic locations and compositions of the countries.

Prevalence, Incidence, Trend, and Complications of Thalassemia in Iraq

Kadhim KA, Baldawi KH, Lami FH. Hemoglobin. 2017 May;41(3):164-168. doi: 10.1080/03630269.2017.1354877. Epub 2017 Aug 24.PMID: 28836463

Abstract

Globally, thalassemia is the most common hereditary hemoglobinopathy, and occurs in 4.4/10,000 live births. In the developing world, the majority of patients die before the age of 20 years. In Iraq, there is little data on the epidemiology and burden of thalassemia. The objectives of this study

were to determine the prevalence, incidence, trend, and complications of thalassemia patients in Iraq. All thalassemia patients registered in the accessible 16 (of the 19) thalassemia centers in Iraq until December 31 2015, were included. Data were acquired from patients' files and the centers' registries. The total number of registered thalassemia patients was 11,165 representing 66.3% of all registered hereditary anemias in these centers. The prevalence of thalassemia had increased from 33.5/100,000 in 2010 to 37.1/100,000 in 2015, while the incidence rate had decreased from 72.4/100,000 live births to 34.6/100,000 live births between 2010 and 2015. β-Thalassemia major (β-TM) represented 73.9% of all types of thalassemia. About 66.0% of patients were under 15 years old; 78.8% were offspring of parents who were related, and 55.9% had at least one complication. Respectively, 13.5 and 0.4% of thalassemia patients were infected with hepatitis C virus (HCV) and hepatitis B virus (HBV) at some point in their lives. No patients were infected with the human immune deficiency virus (HIV). In conclusion, the prevalence of thalassemia in Iraq is slightly increasing in spite of decreasing incidence. Screening for carriers, and intensified premarital screening and counseling programs, coupled with strong legislation can help in further decreasing incidence rate.

Keywords: Epidemiology; Iraq; thalassemia; trend.

Nutritional Status among Children under Five Years in Amman, Jordan

El Azhari, M., Slaih, A. A., S. Khader, Y., Al-Musa, A., & Iblan, I. (2017). International Journal of Child Health and Nutrition, 6(3), 110–115. https://doi.org/10.6000/1929-4247.2017.06.03.4

Abstract

Objectives: There is scarcity of data on malnutrition among children in Jordan. Therefore, this study was conducted to assess the nutritional status and estimate the prevalence rates of stunting, underweight, and wasting and their associated factors among children under five.

Subjects and Methods: A cross-sectional study was conducted between January and April 2017 among children under five years in Amman, Jordan. All Jordanian children under five years who visited the selected health centers for vaccination or accompanied their mothers during the study period were included in this study. Mothers or caregivers of children were interviewed face-to face using the study questionnaire. Weight in kilograms and height in centimeters were measured for all children. Anthropometric indices were calculated using reference medians recommended by the World Health Organization.

Results: This study included a total of 923 (463 boys and 460 girls) children. The prevalence rates of stunting, underweight, and wasting were 6.2%, 3.8%, and 2.8%, respectively. Multivariate analysis showed that low birth weight was significantly associated with stunting (OR = 2.9, 95% CI: 1.4,6.0; p-value=0.003) and underweight (OR =5.6, 95% CI: 2.5,12.3, p-value <0.001). Compared to exclusive breastfeeding, mixed feeding was associated with increased odds of stunting (OR =2, 95% CI: 1.1-3.9, p-value =0.029) and underweight (OR = 2.2, 95% CI: 1.002, 5.0; p = 0.049). None of the variables were significantly associated with wasting.

Conclusions: The prevalence rates of stunting, wasting and undernutrition among children under five years in Jordan are low. Low birth weight and

mixed feeding were associated with higher rates of malnutrition.

Keywords: Malnutrition, stunting, wasting, undernutrition.

Knowledge and Practice of Biosafety Among Laboratory Staff Working in Clinical Laboratories in Yemen

Al-Abhar, N., Al-Gunaid, E.A., Moghram, G.S., Al-hababi, A.A., Al Serouri, A., & Khader, Y.S. (2017). Applied Biosafety, 22, 168 - 171.

Abstract

This study was conducted to assess the knowledge and practices of laboratory standard precautions (LSP) among laboratory staff working in Yemen clinical laboratories. A cross-sectional study was conducted among all laboratory staff in main public and private laboratories between September and October 2015. Data were collected using a self-reported questionnaire. A total of 362 participants had filled the study questionnaire with a response rate of 94%. Of the private and public laboratory staff, 67% and 32% had received training on biosafety (P < .001), respectively. Only 18% of respondents had received the biosafety manual (49% in private laboratories and 11% in public laboratories, P < .001). Overall, only 38% of respondents had good knowledge of LSP, 49% had fair knowledge, and 13% had poor knowledge. Only 32% of respondents had good practice of LSP, 59% had fair practice level, and 9% had poor practice. In conclusion, this study showed fair to poor biosafety knowledge and practices among laboratory staff as well as weak commitment to biosafety policies as reflected by low percentage of laboratory staff who received a biosafety manual and training. This finding underlines the need to strengthen the biosafety program and policies in laboratories in Yemen.

Evaluation of Outpatient Therapeutic Programme (OTP) for Treatment of Severe Acute Malnutrition in Yemen: A Focus on Treatment Default and its Risk Factors

Al Amad M, Al-Eryani L, Al Serouri A, Khader YS.
J Eval Clin Pract. 2017 Dec;23(6):1361-1366. doi: 10.1111/jep.12798. Epub 2017 Aug 1.PMID: 28762594

Abstract

Objectives: This study aimed to measure the treatment default rate among children with severe acute malnutrition (SAM) who were admitted to the outpatient therapeutic programme (OTP) in Yemen and determine its risk factors.

Methods: A prospective study was conducted among children with SAM who were newly admitted to the 11 OTPs in primary health centres of Sana'a city. A pretested semistructured questionnaire was used for data collection at admission and at after 2 months of admission to the OTP. Univariate and multivariate analysis using binary logistic regression were used to analyse the risk factors of treatment default.

Results: This study included 339 SAM children. Of those, 186 (55%) children discharged as defaulters, 141 (42%) were cured, and 12 (3%) were transferred to other treatment sites. Many factors related to poor accessibility, poor satisfaction with staff and system, and treatment and acceptability of OTP services factors were significantly associated with treatment default. Having difficulty to attend OTP every week (OR 8.4), unavailability of medication during follow-up visits (OR 5.0), not liking to eat Plumpy'Nut (OR 5.8), and not gaining weight since the start of treatment (OR 9.3) were the strongest predictors of treatment default.

Conclusions: This study showed a high default rate among SAM children in Sana'a city. Factors related to poor accessibility, poor satisfaction with staff and system, and factors related to treatment and acceptability of OTP services were significantly associated with high default rate. Expansion of OTP services and training OTPs staff on SAM treatment protocols are highly recommended.

Keywords: Yemen; field epidemiology training programme; outpatient therapeutic programme; severe acute malnutrition; treatment default, risk factors.

Prevalence of Noise Induced Hearing Loss among Jordanian Industrial Workers and its Associated Factors

Almaayeh M, Al-Musa A, Khader YS. Work. 2018;61(2):267-271. doi: 10.3233/WOR-182797.PMID: 30373976

Abstract

Background: Exposure to excessive noise is the most common preventable cause of hearing loss. It has been estimated that more than 12% of the global population is at risk for hearing loss from noise and about one-third of all cases can be attributed to noise exposure.

Objectives: Data on occupational noise and its associated hearing loss are lacking in Jordan. This study aimed to determine the prevalence of noise induced hearing loss (NIHL) among industrial workers in Jordan.

Methods: This study included all workers who had been exposed to noise at least three years or more in three plants in Madaba Governorate in Jordan. A structured questionnaire was used to collect the data. The occupational noise was measured using a portable calibrated sound meter. Pure-tone air conduction audiometry was performed to determine the hearing thresholds in the frequencies of 250, 500, 1000, 2000, 3000, 4000, 6000, and 8000 Hz for both ears of all subjects.

Results:This study included 196 workers aged between 20 and 54 years with a mean (SD) of 35.9 (7.2) year. Overall, the prevalence of NIHL among workers was 28.6% (35.0% among those exposed to high level of noise (>85 dB) and 12.5% among workers exposed to low level of noise (≤85 dB)). Age >35 years (OR = 2.7; 95% CI: 1.2-6.1), high noise level (OR = 4.2; 95% CI: 1.6-10.5), exposure of more than 10 years (OR = 2.0; 95% CI: 1.1-5.9), and not using hearing protective devices (OR = 2.7; 95% CI: 1.1-6.6) were significantly associated with increased odds of hearing loss.

Conclusions: About one quarter of noise-exposed industrial workers in Jordan has NIHL. Age >35 years, high noise level, exposure of more than 10 years, and not using hearing protective devices were significantly associated with increased risk of NIHL.

Keywords: Jordan; Occupational noise; noise level.

Rate and Pattern of Unintentional Injuries among 9-12 Grades Schoolchildren in Yemen and their Associated Factors

Alshahethi A, Al Serouri A, Khader YS. J Inj Violence Res. 2018 Jul;10(2):75-82. doi: 10.5249/jivr.v10i2.966. Epub 2018 Mar 11.PMID: 29531184

Abstract

Background: The burden and pattern of unintentional child injuries in Yemen are not yet studied. This study aimed to determine the rate of

unintentional injuries and their associated factors and describe the pattern of these injuries among schoolchildren in Sana'a city, Yemen.

Methods: A cross-sectional school-based study was conducted among students in grades 9-12 in Sana'a Capital City. A total of 10 schools were selected using multistage sampling technique. A self-administered questionnaire was used to collect the data.

Results: A total of 1140 students (558 girls and 582 boys) participated in the study. Of all students, 550 (48.2%) students reported unintentional injuries during the last 12-months. In the multivariate analysis, boys were more likely to be injured compared to girls (OR = 1.6) and being a child of divorced or widowed parents was significantly associated with increased odds of injury (OR = 1.7). Age of the household head ≤45 years was associated with deceased odds of injuries (OR = 0.76). Fall was the leading cause of injury. More than half of girls (58.9%) and 30.9% of boys were injured at home. About two thirds (64.9%) of injuries affected the lower or upper extremities. One quarter of students (24.5%) received care for their injuries in outpatient clinics and 15.3% were hospitalized because of the injury. About 26.0% of injured students missed schools for one week or more. The vast majority of students (98.4%) recovered the injury while 1.6% of injuries resulted in disability.

Conclusions: Schoolchildren in Yemen had a high rate of unintentional injuries being higher in boys and in children of divorced or widowed parents. These injuries should be recognized as a public health problem in Yemen and should be included in the Ministry of Education and Ministry of Health agenda. The reported injury mechanisms and activities posing injury risks should have implications for future interventions and awareness programs.

Impact of Training of Primary Health Care Centers' Vaccinators on Immunization Session Practices in Wasit Governorate, Iraq: Interventional Study

Amily AS, Lami F, Khader Y.
JMIR Public Health Surveill. 2019 Oct 7;5(4):e14451. doi: 10.2196/14451.PMID: 31593540

Abstract

Background: Immunization averts more than 2.5 million deaths of children annually. The World Health Organization (WHO) and the United Nations Children's Fund estimates of immunization coverage in Iraq in 2015 revealed a 58% coverage for the third dose of the diphtheria-tetanus-pertussis vaccine and a 57% coverage for the measles vaccine. High-quality immunization session practices (ISPs) can ensure safer, more effective vaccination and higher coverage rates.

Objective: The goal of this study was to assess the impact of training of primary health care centers' (PHCs) vaccinators on the quality of ISPs.

Methods: This was an interventional study conducted on 10 (18%) PHCs in Wasit Governorate. Two PHCs were randomly selected from each health district. ISPs were assessed by direct on-job observation, using modified WHO immunization session checklists. Findings were grouped into seven domains: vaccine and diluent management, cold chain management, session equipment, registration, communication, vaccine

preparation and administration, and waste management. The vaccinators were enrolled in a one-day training session using the WHO module, "Managing an Immunization Session", and one month later a second assessment was conducted using the same tools and techniques. We then calculated the median differences of the domains' scores.

Results: A total of 42 vaccinators were trained, with 25 (60%) of them having graduated from technical health institutes, but only 15 (36%) having had previous training on standard ISPs. Following training, a significant improvement was noticed in three domains: vaccines and diluents management (P=.01), cold chain management (P=.01) and vaccine preparation and administration (P=.02).

Conclusions: The training of the PHCs' vaccinators for a single day was effective in improving some ISPs. We would recommend using this training module, or a more in-depth one, for other PHCs to improve utilization of immunization services.

Keywords: Iraq; immunization; intervention; practices; primary health care.

Evaluation of the Yield of Histopathology in the Diagnosis of Lymph Node Tuberculosis in Morocco, 2017: Cross-Sectional Study

Bennani K, Khattabi A, Akrim M, Mahtar M, Benmansour N, Essakalli Hossyni L, Karkouri M, Cherradi N, El Messaoudi MD, Lahlou O, Cherkaoui I, Khader Y, Maaroufi A, Ottmani SE.
JMIR Public Health Surveill. 2019 Oct 9;5(4):e14252. doi: 10.2196/14252.PMID: 31599732

Background: The frequency of occurrence of extrapulmonary tuberculosis (EPTB) has been increasing globally over the last two decades. In Morocco, EPTB cases account for 46% of the patients reported with a new episode of tuberculosis (TB). Lymph node TB (LNTB) is the most common form of EPTB. In line with the guidelines of the National TB Program, the diagnosis is mainly based on clinical evidence, including histopathology.

Objective: This study aimed to evaluate the yield of histopathology testing in the diagnosis of LNTB.

Methods: This cross-sectional, prospective study was conducted among patients with cervical lymph node who were enrolled in the study from November 2016 to May 2017 in three regions of Morocco. We compared the outcomes of histopathological testing with those of bacteriology. Sensitivity (Se), specificity (Sp), positive predictive value (PPV), and negative predictive value (NPV) of histopathology testing were calculated. Culture and Xpert tests were used as the gold standard Laboratoty Testing.

Results: A total of 262 patients were enrolled in this study. The Se, Sp, PPV, and NPV of histopathology testing were 95.6% (129/135), 64.6% (82/127), 74.1% (129/174), and 93.2% (82/88), respectively, in the presence of granuloma with or without caseous necrosis and were 84.4% (114/135), 74.8% (95/127), 78.1% (114/146), and 81.9% (95/116), respectively, in the presence of granuloma with caseous necrosis. The granuloma with caseous necrosis was associated with increased PPV and Sp of histopathology testing (P<.05).

Conclusions: The presence of the granuloma with caseous necrosis in the histopathological examination had significantly improved the yield of

histopathology testing for the diagnosis of LNTB. The findings recommend to maintain histopathology testing in establishing the LNTB diagnosis and to explore other techniques to improve it.

Keywords: Morocco; histopathology; lymph node tuberculosis; positive predictive value; yield.

Unintentional Injuries in the Three References Laboratories: Sana'a, Yemen

Al Eryani YM, Nooradain N, Alsharqi K, Murtadha A, Al Serouri A, Khader Y.
Int J Prev Med. 2019 Oct 9;10:174. doi: 10.4103/ijpvm.IJPVM_160_17. eCollection 2019.PMID: 32133092

Abstract

Background: The aim is to determine the incidence rate of unintentional injuries and its associated factors and determine the pattern of these injuries among laboratory staff in three reference laboratories in Sana'a, Yemen.

Methods: A cross-sectional study was conducted among laboratory staff in the three reference laboratories in Sana'a, Yemen. A pretested structured questionnaire was used to collect data on the unintentional injuries during the past 12 months including the type of injury.

Results: A total of 93 technicians responded and filled the questionnaires. Of the 93 technicians, 51 (54.8%) technicians reported that they had been injured in the past 12 months. Of all injuries, 38% of technicians were caused by needle sticks, 21% by sharp materials other than needles, 15% by hot materials, 15% by exposure to chemicals, and 11% of them by other exposures. Only 18% of injuries were reported to safety officer in the laboratory. Those who had an experience of <5 years were more likely to experience injury in the past 12 months than those who had 5 years of experience or more (odds ratio = 8.3; 95% confidence interval: 2.2, 27.4; P < 0.005).

Conclusions: About half of laboratory technicians in Yemen reported that they had been injured in the past 12 months, with the needle stick being the most common cause of injury. Therefore, there is a need for targeted interventions to laboratory technicians to increase their awareness on the risk of injuries in the laboratory. Bio-safety training among laboratory technicians deemed very necessary.

Keywords: Field epidemiology training program; Yemen; laboratory technicians; medical laboratories; unintentional injuries.

Perceived Stress among Resident Doctors in Jordanian Teaching Hospitals: Cross-Sectional Study

Maswadi N, Khader YS, Abu Slaih A.
JMIR Public Health Surveill. 2019 Oct 2;5(4):e14238. doi: 10.2196/14238.PMID: 31579024

Abstract

Background: Medical residents in Jordanian hospitals are involved in many clinical and nonclinical tasks that expose them to various stress factors. High stress and burnout have the potential to negatively impact work performance and patient care, including medication errors, suboptimal care, clinical errors, and patient dissatisfaction.

Objective: This study aimed to determine the perceived stress among medical residents in

Jordanian hospitals and its associated risk factors.

Methods: A cross-sectional study was conducted among residents in Jordanian hospitals. A cluster sample of 5 hospitals with residency programs was selected from different health sectors. All residents who were working in the selected hospitals were invited to participate in this study, during the period from April to July 2017. A total of 555 residents agreed to participate in this study, giving a response rate of 84%. The perceived stress scale (PSS) was used for assessment.

Results: A total of 398 male and 157 female residents were included in this study. The mean PSS score in this study was 21.6; 73% (405/555) of the residents had moderate level of stress, and 18% (100/555) had high level of stress. About 6.7% (37/555) of the residents had hypertension, 2.7% (15/555) had diabetes, 3.2% (18/555) had heart disease, and 8.5% (47/555) were anemic. 233 (42%) respondents complained of back pain, and 161 (29%) of the respondents complained of insomnia. Stress was associated with higher workload, sleep deprivation, and dissatisfaction in the relationship with colleagues, with income, and with the program. In multivariate analysis, the following factors were significantly associated with stress: female gender, dissatisfaction with working environment, and facing work-related, academic, and family stressors.

Conclusions: The majority of medical residents in Jordanian hospitals felt nervous and stressed. Conducting stress management programs during residency and improving the work environment are strongly recommended.

Keywords: Jordan; physicians; psychology; teaching hospitals.

The Impact of War in Yemen on Immunization Coverage of Children Under One Year of Age: Descriptive Study

Torbosh A, Al Amad MA, Al Serouri A, Khader Y.
JMIR Public Health Surveill. 2019 Oct 23;5(4):e14461. doi: 10.2196/14461.PMID: 31647465

Abstract

Background: After 2 years of war that crippled the capacity of the Yemeni National Health System and left only 45% of health facilities functioning, Yemen faced increasing vaccine-preventable disease (VPD) outbreaks and may be at high risk of polio importation.

Objective: The aim of this study was to determine the impact of the 2015 war on the immunization coverage of children under 1 year.

Methods: Data on vaccination coverage for 2012-2015 were obtained from the national Expanded Program on Immunization (EPI). The vaccination coverage was calculated at the national and governorate levels by dividing the number of actually vaccinated children by the estimated population of children under 1 year.

Results: Although there was an increase from 2012 to 2014 in the national coverage for penta-3 vaccine (82% in 2012 vs 88% in 2014) and measles vaccine (70% in 2012 vs 75% in 2014), the coverage was still below the national target (≥95%). Furthermore, the year 2015 witnessed a marked drop in the national coverage compared with 2014 for the measles vaccine (66% in 2015 vs 75% in 2014), but a slight drop in penta-3 vaccine coverage (84% in 2015 vs 88% in 2014). Bacillus Calmette-Guérin vaccine also showed a marked drop from 73% in 2014 to 49% in 2015. These reductions were more marked in governorates that

witnessed armed confrontations (eg, Taiz, Lahj, and Sa'dah governorates). On the other hand, governorates that did not witness armed confrontations showed an increase in coverage (eg, Raymah and Ibb), owing to an increase in their population because of displacement from less secure and confrontation-prone governorates.
Conclusions: This analysis demonstrated the marked negative impact of the 2015 war on immunization coverage, especially in the governorates that witnessed armed confrontations. This could put Yemen at more risk of VPD outbreaks and polio importation. Besides the ongoing efforts to stop the Yemeni war, strategies for more innovative vaccine delivery or provision and fulfilling the increasing demands are needed, especially in governorates with confrontations. Enhancing EPI performance through supportable investments in infrastructure that was destroyed by the war and providing decentralized funds are a prerequisite.

Keywords: 2015 war; Y-FETP; Yemen; immunization coverage; impact.

Occupational Exposure to Needle Stick Injuries and Hepatitis B Vaccination Coverage Among Clinical Laboratory Staff in Sana'a, Yemen: Cross-Sectional Study

Al-Abhar N, Moghram GS, Al-Gunaid EA, Al Serouri A, Khader Y.

JMIR Public Health Surveill. 2020 Mar 31;6(1):e15812. doi: 10.2196/15812.PMID: 32229462

Abstract

Background: Laboratory staff handling blood or biological samples are at risk for accidental injury or exposure to blood-borne pathogens. Hepatitis B virus (HBV) vaccinations for laboratory staff can minimize these risks.

Objective: The aims of this study were to determine the prevalence of occupational exposure to needle stick injuries (NSIs) and assess HBV vaccination coverage among clinical laboratory staff in Sana'a, Yemen.

Methods: A cross-sectional survey was conducted among clinical laboratory staff who were involved in handling and processing laboratory samples at the main public and private clinical laboratories in Sana'a. Data collection was done using a semistructured questionnaire. The questionnaire was divided into 3 parts. Part 1 included information on sociodemographic characteristics of participants. Part 2 included information on the availability of the personal protective equipment in the laboratories, such as lab coats and gloves. Part 3 included questions about the history of injury during work in the laboratory and the vaccination status for HBV.

Results: A total of 219/362 (60%) participants had been accidentally injured while working in the laboratory. Of those, 14.6% (32/219) had been injured during the last 3 months preceding the data collection. Receiving the biosafety manual was significantly associated with lower risk of injury. Out of those who were injured, 54.8% (120/219) had received first aid. About three-quarters of respondents reported that they had been vaccinated against HBV. The vaccination against HBV was significantly higher among laboratory staff who were working at private laboratories (P=.01), who had postgraduate degrees (P=.005),

and who received the biosafety manual (P=.03).

Conclusions: Occupational exposure to NSI is still a major problem among laboratory staff in public and private laboratories in Sana'a, Yemen. The high incidence of injuries among laboratory staff and the low rate of receiving first aid in laboratories combined with low vaccination coverage indicates that all laboratory staff are at risk of exposure to HBV. Therefore, strengthening supervision, legalizing HBV vaccinations for all laboratory staff, and optimizing laboratory practices regarding the management of sharps can minimize risks and prerequisites in Yemen.

Keywords: Yemen; biosafety; hepatitis B; injury; laboratory staff; vaccination.

Strengthening the One Health Approach in the Eastern Mediterranean Region

Hailat E, Amiri M, Debnath N, Rahman M, Nurul Islam M, Fatima Z, Khader Y, Al Nsour M.
Interact J Med Res. 2023 Mar 21;12:e41190. doi: 10.2196/41190.PMID: 36943329

Abstract

One Health aims to use a multidisciplinary approach to combat health threats at animal, human, and environmental health interfaces. Among its broad focus areas are issues related to food safety, the control of zoonoses, laboratory services, neglected tropical diseases, environmental health, biosafety and biosecurity, and combatting antimicrobial resistance. A roundtable session was conducted on November 18, 2021, as part of the Eastern Mediterranean Public Health Network's (EMPHNET) seventh regional conference to highlight what role Global Health Development (GHD)|EMPHNET can play to strengthen the One Health approach. This viewpoint summarizes the findings of the roundtable discussion to highlight the experts' viewpoints on strengthening the One Health approach, including the extent of zoonotic diseases and the dynamics of pathogens and emerging diseases; the occurrence of antimicrobial-resistant pathogens as a silent pandemic; issues surrounding the globalization of trade and food safety; the importance of integrated solutions as a new norm; issues around the institutionalization and governance toward effective operationalization of the One Health approach in the region; and how the One Health approach can be operationalized at global, regional, and local levels. The panel concluded that One Health is an integrated unifying approach that aims to sustainably balance and optimize the health of people, animals, and ecosystems, and provided recommendations to strengthen the One Health approach. It also discussed how GHD|EMPHNET can play its role in transferring the concept of One Health from theory to practice via a solid operationalization road map guide at the Eastern Mediterranean region level. The five broad priority areas of this operational guide include (1) establishing and strengthening a governance architecture, legal framework, and policy and advocacy structure for One Health operationalization in the region; (2) fostering coordination, communication, and collaboration for One Health actions across the region and beyond; (3) building the workforce capacity for effective One Health operationalization in the region; (4) supporting regional platforms for timely, effective, and efficient data sharing and exchange on all One Health-related issues; and (5) supporting risk communication, behavior change communication, and community engagement efforts in the region.

Keywords: One Health; antimicrobial resistance,

Eastern Mediterranean region countries; operationalization; zoonosis.

Epidemiological Profile of Hemophilia in Baghdad-Iraq

Kadhim KAR, Al-Lami FH, Baldawi KH. Inquiry. 2019 Jan-Dec;56:46958019845280. doi: 10.1177/0046958019845280.PMID: 31081421

Abstract

Hemophilia is an inherited bleeding disorder that mainly affects males. Globally, there are about 400 000 people with hemophilia and only 25% of them receive adequate treatment. There is insufficient epidemiological data on hemophilia in Iraq; so, this study was conducted to determine the trend of the prevalence and incidence and to identify certain clinical and epidemiological characteristics of patients with hemophilia in Baghdad, Iraq, 2016. This cross-sectional study was conducted in the 4 hemophilia centers in Baghdad. The data were compiled by reviewing all hemophilia patients' records and the centers' registry books between 2007 and 2016. Corresponding population data of Baghdad were obtained from the Ministry of Health. The total number of currently registered patients who are residents of Baghdad was 654. The prevalence of hemophilia increased from 7.2/100 000 males in 2007 to 15.9/100 000 males in 2016. Similarly, the incidence of hemophilia had increased from 8.4/100 000 livebirths in 2007 to 16.3/100 000 livebirths in 2016. Severe hemophilia represented 63.4% of all types. The prevalence of hepatitis C virus (HCV), hepatitis B virus (HBV), and HIV infections were 22.9%, 0.9%, and 0.2%, respectively. Clotting factor inhibitors were positive in 11.6% and target joints were found among 45.1% of patients. About 27% were on prophylactic therapy. Only one death was recorded in 2016. The prevalence and incidence of hemophilia in Baghdad was doubled in 10-year period. The prevalence of different complications was almost close to the rates in the neighboring countries.

Keywords: Iraq; epidemiology; hemophilia; prevalence; viral hepatitis.

Case Studies

Public Health and Field Epidemiology Case Studies

Mohannad Al Nsour

Editorial

FETPs are a competency based leaning program where the target audience is mainly public health officers of the Ministries of Health. The learning model focuses on problem-based learning exercises. Case study method is a powerful student-centered teaching strategy that can impart fellows/ participants with critical thinking, communication, and interpersonal skills. It is an effective tool for simulating real-life public health functions and services in public health training programs [1]. Having fellows / participants work through real world problems engages fellows with the course material, encouraging them to see it from an action perspective, rather than analyze it from a distance. [2].

In EMR, field epidemiology as well as public health curricula have relied on fewer local specific case studies or exercises owing to the dearth of examples tailored to EMR contexts. In the past FETP residents, graduates and other public health professionals were using various case studies from outside the region which don’t necessary

match the public health situation in their countries and EMR. The writing of a new case study requires considerable time, effort, and access to the original data and few FETPs have taken the initiative to develop such project. To offset this gap, GHD/EMPHNET developed a Case Study Design and Development Course using didactic and hands-on training to develop competency in case study design and development. During the one-week course, participants learnt the format, process, and guidelines for developing a public health case study, then created case-studies based on a relevant public health issue. The course used didactic and hands-on training to develop competency in case study design and development, as well as other pedagogical skills. Its aim was to help trainees design and develop a thoughtful, detailed, and culturally tailored public health case study that addresses a health concern in the local geographical context of the trainee.

This supplement includes 17 case-studies in various areas of public health. They are developed in different formats, from a simple "What would you do in this situation?" question to a detailed description of a situation with accompanying data to analyze. Most case assignments require fellows to answer an open-ended question or develop a solution to an open-ended problem with multiple potential solutions. Requirements can range from a one-paragraph answer to a fully developed group action plan or decision. They tell a good story, include dialogue, create empathy with the main characters, are relevant to the reader, serve a teaching function, require a dilemma to be solved, and have generality. Working on these case-studies requires fellows to research and evaluate multiple sources of data, good organizational and time management skills. It is expected that these case-studies will increase fellows proficiency with written and oral communication, as well as collaboration and team-work. Moreovere, these case studies are from EMR countries where this supplement offers a great opportunity for public health professionals to use data from the region and to be closer to real scenarios and events.

Establishing Web-based Syndromic Surveillance for Hajj: A Teaching Case-Study

Mohamed Nageeb Abdalla,&, Azhar Mujib, Sami Almudaraa, Shady Kamal, Mohammed Al-Thebyani, Zayid Al Mayahi, Mohamad Al-Yousef, Abdullah Turkistani, Ahmed Elganainy, Yousef Khader

Abstract

Hajj, the Muslims ritual pilgrimage to Makkah in Saudi Arabia, is an annual and everlasting mass gathering event of more than two million persons. This ritual which takes 15 - 40 days is performed in a very crowding situation, involving a lot of outdoor movements and under a harsh environment. Public health surveillance, in particular for infectious diseases, is being carried out intensively but using routine methods depending on reported suspected cases from clinics. There is a clear demand for more real-time / near real-time notification of every suspected case. Early detection of priority events and situational awareness can be achieved via Syndromic Surveillance. This case study simulates the steps to be carried in developing a model of Syndromic Surveillance relevant to Hajj in Saudi Arabia. Using the ready collected data from health facilities, Syndromic Surveillance can be generated based on a logical algorithm to produce automated graphical output. The later will be used to monitor the epidemiological situation. This case study is designed for the training of both novice or advanced level field epidemiology trainees and other officials working at National or Regional Surveillance Departments. It can be administered in 3-4 hours. The case study provides the trainees with competencies in designing and developing electronic surveillance models, suitable to use when dealing with mass gatherings.

Surveillance of Rickettsia in Jordan since 2013

Sultan Alqasrawi, Mohammad Maayaa, Ghaith Weiss, Malak Shaheen, Yousef Khader

Abstract

This case study was written based on an outbreak of fever and rash that affected 19 children in two governorates (Alkarak and Madaba) in Jordan during summer 2013. Outbreak investigation data were collected through medical records, line listing form, interview treating physicians, and laboratory results. Outbreak investigations revealed that this outbreak was due to Rickettsia, which has not been reported in Jordan previously. After that, Jordan Ministry of health introduced rickettsia to the list of notifiable diseases and to the surveillance guidelines manual (version 2015). Participants of this case study are focal points of surveillance, Field Epidemiology Training Program (FETP) trainees, and other health professionals. At the end of the case study, participants should able to detect rickettsia, apply the principals of the outbreak investigation, use surveillance data to respond to an outbreak, engage the community to prevent the disease, and cooperate with other authorities to control the disease.

Outbreak Investigation Around Extensive Environmental Contamination in an Artisanal Area of Morocco: A Teaching Case-Study

Asmae Khattabi, Alj Loubna, Hanan Chaoui, Meski Fatima Zahra, Sanae Achour, Youef Khader, Malak A Shaheen

Abstract

We Environmental lead exposure has a proven risk to human health, especially for children. It causes a nervous system effect with irreversible consequences which generate important and entirely avoidable health expenses. This chronic exposure poses problems in clinical diagnosis, identifying sources of contamination, and detection at the laboratory level because of the lack of awareness and training of health professionals. This case study simulates an outbreak investigation including laboratory confirmation, active case finding, etiological study and implementation of control measures. After completing this case study, the participant will be competent to apply epidemiological principles to respond to the outbreaks as they occurred and suggest steps toward development of policy recommendations based on the context of environmental lead exposure. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreak Investigation around extensive lead environmental contamination.

Epidemiology of Malaria in Khartoum, Sudan: A Teaching Case-Study

Shahd Osman, ElFatih Malik, Elsadig Mahgoub Eltayeb, Yousef Khader, Malak Shaheen

Abstract

Malaria is among the top leading causes of mortality and morbidity throughout the globe, where Sudan bears a significant burden of the disease. The disease epidemiology has been noticeably changed in the last decade. Many environmental, behavioral, and managerial factors have contributed to the change in the trend. The

trainees are planned to develop a risk reduction framework for Malaria in Sudan, taking Khartoum state as an example. The participants are expected to analyze the trend of Malaria through the period of 2006 to 2011, assess factors contributing to the change in the trend and to design risk management framework to minimize the risk of Malaria in Sudan. The case study is designed for the training of novice level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 3 hours. Used as adjunct training material, the case study provides the trainees with competencies in developing disease risk reduction framework that can be used for the actual real-life experience to control Malaria, and similar conditions, at the sub-national levels.

Imported Outbreak of Poliomyelitis in Sudan 2004-2005: A Teaching Case-Study

Shahd Osman, ElFatih Malik, Elsadig Mahgoub Eltayeb, Yousef Khader, Malak Shaheen

Abstract

Sudan initiated poliomyelitis eradication activities at 1994 in its northern part and followed through in 1998 in the southern part. As a result, there was significant progress in implementing poliomyelitis eradication strategies, with no cases reported from May 2001 until April 2004. Nonetheless, a case of wild poliomyelitis was detected in Sudan in May 2004 and it was found to be imported from Nigeria through Chad. This initiated an outbreak that spread in 18 states out of the 26 states back then. A total of 128 cases were reported in 2004 and 27 additional cases in 2005. Factors affecting the pace and scale of the outbreak included low routine immunization, population movement, and insecurity in the Darfur region. A rapid plan for immunization of children with OPV, strengthening of routine immunization, and cross border coordination meetings were held with neighboring countries to synchronize the National Immunization Days (NIDs) and exchange of information effectively. Efforts were undertaken to improve the routine Expanded Program of Immunization (EPI) using international funds. This teaching case study simulates an outbreak/epidemic investigation that includes laboratory confirmation, active case finding, descriptive epidemiology and implementation of control measures. It is designed for the training of advanced level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 4-6 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak preparing them for actual real-life experiences of investigating unusual outbreaks with special consideration to assessing risk factors related to importation of diseases and diseases under elimination/ eradication.

Infection Control Crisis due to Methicillin-Resistant Staphylococcus Aureus (MRSA) in An Intensive Care Unit at A Jordanian Hospital, 2016: A Teaching Case-Study

Ilham Abu-Khader, Tareq Sanouri, Nancy Abdul-Rahim, Yousef Khader, Malak A Shaheen

Abstract

Methicillin-resistant Staphylococcus aureus (MRSA) strains have been extremely important pathogens as hospital acquired infection in healthcare settings for more than three decades with particularly life-threatening manifestations. The most frequent hospital acquired infections are among those undergoing invasive medical

procedures or weakened immune systems in intensive care unit. Additionally, infections resulting from community-associated MRSA strains have emerged in the last decade and become a public health problem of global proportions. The goal of this case study is to understand the transmission of methicillin resistance staphylococcus aureus and apply appropriate infection control measures in intensive care units at Jordanian Hospitals. It simulates an antibiotic resistance investigation including laboratory confirmation, active case finding, descriptive epidemiology and implementation of control measures. After completing this case study, the healthcare professional will be able to list the mechanisms conferring the antimicrobial resistance associated with MRSA, list the risk factors of MRSA, and to use protective preventive measures.

Acute Flaccid Paralysis Surveillance System Performance in Jordan, 2012-2016: A Teaching Case-Study

Fatima Zerriouh, Yousef Khader, Nabil Sabri, Kamel Abusal, Ibrahim Iblan, Layla Ghaffari3, Mohammed Abdallat, Malak A Shaheen

Abstract

Nationwide Acute Flaccid Paralysis (AFP) surveillance is one of the key strategies to timely detect paralytic poliomyelitis and to respond effectively to interrupt poliovirus transmission. One way to ensure that AFP surveillance is implemented with the required standards and to identify limitations and gaps in order to maintain the polio-free status is conducting evaluation of AFP surveillance. This case study simulates an evaluation of AFP surveillance system in Jordan from 2012-2016 for teaching purposes to develop competencies in evaluating AFP surveillance using WHO minimum performance indicators. It was designed for the training of basic level field epidemiology trainees or any other health care providers working in public health-related fields, who should be able to complete this exercise in approximately 3-4 hours.

Epidemiological Profile of Crimean Congo Hemorrhagic Fever (CCHF) in Afghanistan: A Teaching Case-Study

Wahida Amini, Mohmmad Iqbal Aman, Yousef Khader, Malik Shaheen

Abstract

Crimean-Congo hemorrhagic fever (CCHF) is a vector-borne hemorrhagic disease caused by a primarily zoonotic virus infecting a wide range of domestic and wild animals. The main implicated vectors are Hyalomma spp. ticks. Transmission of the virus to humans occurs through tick bites, crushing of infected ticks, contact with blood, body fluids, and tissue of patients with CCHF during the acute phase of illness; and contact with blood or tissue of viremic livestock. Afghanistan health officials have reported an increase in CCHF cases in 2017. In 2017, a total of 237 cases of CCHF including 41 deaths (CFR: 17.2%) have been reported throughout 27 provinces. Majority of these cases-71 cases (nearly 30%) including 13 associated deaths (CFR: 18.3%), were reported from the capital city, Kabul. This case study simulates an epidemic investigation including laboratory confirmation, active case finding, descriptive epidemiology and implementation of control measures. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working with CCHF and other public health-related fields. It

can be administered in 2-3 hours. Used as adjunct training material, the case study provides the trainees with competencies in assessing the epidemiological profile of CCHF.

Survival Analysis of Colorectal Cancer in Jordan Using Cancer Registry Data: A Teaching Case-Study

Kamal Arqoub, Yousef Khader, Majed Asaad, Omar Nimri

Abstract

Cancer registration is a process of continuous and systematic collection of data on the occurrence and characteristics of reportable neoplasm with the purpose of helping to assess and control the impact of malignancies on the community. Cancer survival is an important method for evaluation of the effectiveness of cancer care and a very effective method for policymakers to establish new cancer control screening programs. This case study simulates an application of survival analysis of cancer and identifying minimum data required for calculating survival analysis using cancer registry data. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 2-3 hours. This case study provides the trainees with competencies in doing survival analysis for cancer using cancer registry data and uses the result of this study for measuring the effectiveness of cancer care and establishing new screening cancer control programs.

What Triggers Dengue Fever Epidemics in Red Sea State, Sudan? A Teaching Case-Study

Elfatih Mohamed Malik, Abdalla Mohammed Abdalla, Salim Salim Mohamednour Salim, Shahd Osman, Haitham Bashier, Sayed Himatt, Elmoubashar Farag, Mohamed Nageeb Abdalla, Salaheldin Mubark Elkhalifa, Elmuez Eltayeb, Yousef Khader

Abstract

Dengue fever (dengue hemorrhagic fever) is a mosquito-borne disease. The disease is widespread throughout the tropics, with risk factors influenced by local spatial variations of rainfall, temperature, relative humidity, the degree of urbanization and quality of vector control services in urban areas. In the East Mediterranean Region, the disease was reported from Sudan, Yemen, and Pakistan in the past five years. During 2015 -2018 many epidemics were detected, investigated and contained in Sudan. The recent epidemics in Sudan were devastating leading to many deaths and invading new areas. It is thus necessary to study triggering factors for the occurrence of dengue fever epidemics. This case study stimulates the students to analyse surveillance data, critically appraise epidemic report and to assess the epidemic contingency plan. The case study is designed for the training Novice field epidemiology trainees. The case study can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in analysing available data in order to identify triggering factors for dengue epidemics in Sudan and using this information to develop risk map using relevant software.

Analysis of Hepatitis C Cascade of Care in Qatar, 2017: A Teaching Case-Study

Hepatitis C virus (HCV) treatment is available free of charge for all patients in Qatar. Therefore, it is critical to identify approaches that will lead to a diagnosis of chronic HCV infection earlier in the course of disease, place and retain them on treatment. These are the elements of the cascade of care framework of the global strategy to eliminate HCV. There is a need to tailor HCV

screening and treatment policies to a country-specific epidemiological context to reduce HCV burden. Robust surveillance systems and data are needed to inform these policies. In this teaching case study, the trainees will learn how to explore surveillance data and measure performance in screening, diagnosing, treating and retaining HCV cases using a cascade of care framework. They will learn how to plan and design interventions to eliminate HCV. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 2-3 hours. Used as adjunct training material, the case study provides the trainees with competencies in analyzing HCV data using the cascade of care framework

Surveillance Gaps Analysis and Impact of the Late Detection of the First Middle East Respiratory Syndrome Case in South Batinah, Oman: A Teaching Case-Study

Zayid Al-Mayahi, Khairy Anis, Nasser Al-Shaqsi, Azza Al-Hattali, Ali Al-Dhoyani, Mohamed Nageeb, Yousef Khader

Abstract

Timeliness is one of the most important components of any successful surveillance system, besides the sensitivity, stability and positive predictive value. The impact of significantly delayed detection of a serious threatening disease could be so severe. Therefore, filling the gaps or defects is of high priority to prevent undesirable consequences to the public health. This teaching case study provides gaps analysis through a systematic approach to the existing surveillance system which detected Middle East Respiratory Syndrome (MERS-CoV) case significantly late, thus improving the ability to mitigate those gaps. It simulates an outbreak investigation including laboratory confirmation, finding epidemiological links, and implementation of control measures. The analysis of surveillance gaps for this single case of MERS-CoV would help the learner realize the role of surveillance major components; case definition, the implementation step, laboratory samples, training and follow up. This case study was developed based on a report submitted to the General Directorate of Disease Surveillance and Control in the Omani Ministry of Health in September 2017. It was designed for the training of field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 4-5 hours as two sessions. Used as adjunct training material, the case study provides the trainees with the practical aspects and challenges of any surveillance system which might not be fully understood through theoretical lectures solely. It also builds competencies in identifying the major gaps and recommending the right root solutions.

Trends of Diphtheria-Tetanus-Pertussis (DPT3) Vaccination Coverage in Afghanistan 2016-2017, Changes and Comparisons: A Teaching Case-Study

Ajmal Zahed, Salamuddin Hakim, Yousef Khader, Malak A Shaheen

Abstract

If all countries are to reach at least 90% DTP3 vaccination coverage, 9.9 million additional children would need to be vaccinated in 64 countries. Of these children, 7.3 million live in fragile states, that is, those countries affected by conflict and/or humanitarian crises; 4 million of these children live in just three countries Afghanistan, Nigeria and Pakistan where access to routine immunization services is critical to

achieving and sustaining polio eradication as well. According to 2016 data, of these 64 countries, 23 are non-Gavi eligible lower-middle-income countries (representing 1.2 million infants), 39 are supported by Gavi (with 8.6 million un- and under-vaccinated) and two are high-income countries. By the end of 2014, 18.7 million children under the age of 1 year had not received three doses of diphtheria-tetanus-pertussis (DPT3). Three-quarters of children who have not received DPT3 coverage are living in Afghanistan. In Afghanistan, the DPT showed low coverage in 2017 compared to 2016. In this case study, we are going to compare vaccination coverage in 2017 with that in 2016 in Afghanistan. This case study aims to simulate the analysis of vaccination coverage and identifying reasons for low vaccine coverage.

Health Investigation Following an Outbreak of Highly Pathogenic Avian Influenza A (H5N1) in Poultry in Nabi Chit, Lebanon, 2016: A Teaching Case-Study

Zeina Farah, Nada Ghosn, Walid Ammar, Yousef Khader

Abstract

In Lebanon, no cases of influenza A (H5N1) were reported among poultry or humans before 2016. In April 2016, the Ministry of Agriculture confirmed the incursion of H5N1 in two poultry farms in Nabi Chit village in Lebanon. The disease led to the death of 20,000 domestic birds. This case study is based on the actions taken by the Ministry of Public Health during this outbreak to prevent the spread of the disease to humans. It simulates an outbreak investigation including laboratory confirmation, active case and exposed finding, descriptive epidemiology and implementation of preventive and control measures. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreaks.

Binary Logistic Regression Analysis of the Association between Body Mass Index and Glycemic Control in Patients with Type 2 Diabetes Mellitus: A Teaching Case-Study

Yousef Khader

Abstract

Type 2 diabetes mellitus (T2DM) is an increasing global health problem in both developed and developing countries, including Arab countries. The goal of T2DM management is to delay the onset of complications associated with the disease and impede disease progression; this is achieved mainly through glycemic control. Unfortunately, glycemic control remains poor, ranging between 40% and 60% worldwide. This case study demonstrates the practical application of basic and advanced statistical techniques to analyze the association between independent and dependent variables. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 5-7 hours in class or as a take-home exercise.

Kaplan-Meier Product Limit Technique and Cox-Regression Analysis to Analyze the Predictors of Survival Among Patients with Colorectal Cancer in Jordan: A Teaching Case-Study

Yousef Khader

Abstract

In Jordan, the age standardized rate (ASR) of colorectal cancer (CRC) has increased from 12.6

per 100,000 in 2005 to 17.2 per 100,000 in 2010. According to the latest comprehensive cancer incidence report in 2012, CRC accounted for 11.3% of all newly diagnosed cases among Jordanians, and ranked the second among all cancers in both genders. The overall crude incidence rate was 8.9/100,000 population (8.6 and 9.2/100,000 males and females, respectively). The overall ASR was 16.3/100,000 (15.9 and 16.6/100,000 males and females, respectively). According to Jordan mortality registry in 2013, neoplasms were the second leading cause of death (16.4% of total deaths), and cancer of small intestine, colon, rectum and anus accounted for 2% of total deaths. This case study demonstrates the practical application of basic and advanced statistical techniques to conduct survival analysis. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 5-7 hours in class or as a take-home exercise.

Investigation of Diphtheria Outbreak in Al-Sunta Locality in South Darfur State - Sudan, 2019/2020: A Teaching Case-Study

Leena El-Samani, Razan Abdalla Taha, Yousef Khader

Abstract

Diphtheria is a highly contagious and potentially life-threatening bacterial infection caused by Corynebacterium species; most commonly by toxin-producing Corynebacterium diphtheria. Over the past 10 years, approximately 4000 to 8000 cases have been reported with a case fatality ratio of up to 10%. With the introduction of diphtheria vaccine (DTP; Diphtheria-Tetanus-Pertussis), the morbidity and mortality rates of diphtheria have substantially decreased. However, poor coverage of vaccination in developing countries has led to numerous diphtheria outbreaks. The first documented diphtheria outbreak in Sudan dates back to 1974. Although routine DTP vaccination is part of the Expanded Programme on Immunization (EPI), there are still reported cases and outbreaks of diphtheria across the country. The most recent outbreak occurred in 2019 with 105 reported cases with the majority of cases coming from one locality in South Darfur state. The goal of this case-study is to build the capacity of FETP residents and strengthen their competencies in outbreak investigation and response to vaccine-preventable disease outbreaks. This case study is designed for training basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 2-3 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreaks.

Teaching Case-Studies in Field Epidemiology in the Eastern Mediterranean Region

Mohannad Al Nsour

Editorial

In a rapidly changing world especially in health sector, marked by frequent turnover and unexpected changes, the need to provide continuous education for public health practitioners remains a priority. In many low and middle-income countries, keeping educated health professionals in-country is challenging. GHD/EMPHNET is working continuously in improving health status in the Eastern Mediterranean Region (EMR) by building national

and regional capacities in several priority public health areas through Field Epidemiology Training Programs (FETPs) which are competency based leaning programs with a learning model focusing on problem-based learning exercises and targeting mainly public health workers in different EMR countries.

GHD/EMPHNET uses a variety of effective teaching strategies to train public health professionals and FETPS´ residents in the region including case-study method. case studies is powerful student-centered teaching strategy that shows the application of a theory or concept to real and an effective tool for simulating real-life public health functions and services in public health training programs. Case studies are effective teaching strategies that promote active learning, encourage the development of critical thinking skills, provide student-centered instruction, help with problem solving, analysis, and problem identification [1], and support decision making in complex situations and coping with ambiguities [2]. Case studies allow students and trainees to "experience" real client situations that they may not have access to in the class room or the field.

GHD/EMPHNET has supported the development of new and diverse teaching case studies in Field Epidemiology and various public health disciplines that are tailored to EMR context and supported FETPs in the region to use them in teaching FETPs´ residents. GHD/EMPHNET keeps providing technical support to facilitators and experts to develop new case studies in EMR based on the local context and country-specific data. These case studies are published in scientific journals in a form of supplements or special issues to be available for use by public health trainers in Ministries of Health and Academic institutions. The previous supplement, published in May 2019, included 17 case studies addressing various public health problems and issues.

The current supplement includes 17 new teaching case studies that are developed based on real events in EMR. These case studies were developed by experienced FETPs´ technical advisers and graduates and other experts in various areas of public health. This supplement includes case studies from Iraq, Morocco, Pakistan, Afghanistan, Saudi Arabia, Lebanon, Egypt, Sudan and Yemen. These case studies are focused on major outbreaks occurred in the countries such as Dengue Fever outbreak in Yemen, Diphtheria outbreak in Sudan, MERS-COV in Saudi Arabia and Hepatitis E in Pakistan. Other health problems and issues are covered in this supplement such as COVID-19 pandemic, Mass Gatherings in Iraq, and hemorrhagic diseases in Sudan.

The case studies were developed in the same format, with open-ended questions to be answered by the trainees including questions about possible solutions for specific health issues. These case will help to build trainees´ competencies in outbreak investigations, designing epidemiological studies, data collection, data analysis and interpretation, using software such as Epi Info™, strengthening and evaluation public health surveillance, risk communication, collaboration and teamworking, and making decisions on containing public health threats. These case studies stimulate the trainees to consolidate their knowledge and improve their public health practices to detect, timely response to major health events and control/prevent them. Moreover, the case studies are expected to improve trainees´ research skills, organizational and time management skills and increase their proficiency in writing and oral communication.

Real-Time Surveillance of Infectious Diseases and Other Health Conditions During Iraq's Arbaeenia Mass Gathering: Cross-Sectional Study

Lami F, Hameed I, Jewad AW, Khader Y, Amiri M.
JMIR Public Health Surveill. 2019 Oct 4;5(4):e14510. doi: 10.2196/14510.

Abstract

Background: The most common religious mass gatherings in the Middle East are the Hajj at Mecca in Saudi Arabia, which occurs annually, and the Arbaeenia in Karbala. The importance of developing public health surveillance systems for mass gatherings has been previously emphasized in other reports.

Objective: This study aimed to describe the common illnesses and health conditions affecting people during the Arbaeenia mass gathering in Iraq in 2016.

Methods: A total of 60 data collectors took part in the field data collection over a period of 11 days, from November 12, 2016 to November 22, 2016. Data were collected from 20 health outlets along the major route from Najaf to Karbala (10 health facilities in each governorate). Two digital forms, the Health Facility Survey and the Case Survey, were used for data collection.

Results: A total of 41,689 patients (33.3% female and 66.7% male) visited the 20 health care facilities over a period of 11 days from November 12, 2016 to November 22, 2016. More than three quarters of patients (77.5%; n=32,309) were between 20-59 years of age, more than half of patients were mainly from Iraq (56.5%; n=23,554), and about 38.9% (n=16,217) were from Iran. Patients in this study visited these health care facilities and presented with one or more conditions. Of a total 41,689 patients, 58.5% (n=24,398) had acute or infectious conditions and symptoms, 33.1% (n=13,799) had chronic conditions, 23.9% (n=9974) had traumas or injuries, 28.2% (n=11,762) had joint pain related to walking long distances, and 0.3% (n=133) had chronic dermatologic conditions.

Conclusions: The Arbaeenia mass gathering in 2016 exerted a high burden on the Iraqi health care system. Therefore, efforts must be made both before and during the event to ensure preparedness, proper management, and control of different conditions.

Keywords: Arbaeenia; Iraq; mass gathering; surveillance.

Infection Prevention and Control for the MERS-COV, 2019: A Teaching Case-Study Student´s Guide

Amal Al-Nafisi, Abdulaziz Almutairi, Sami Al-Mudarra

Abstract

The Middle East Respiratory Syndrome Coronavirus (MERS-CoV) is a viral respiratory disease caused by a novel coronavirus that was first identified in the Kingdom of Saudi Arabia (KSA) in 2012. On the 12th of February 2019, the Ministry of Health (MOH) represented by the Control and Command Center (CCC) reported an increase in MERS-CoV cases in Wadi Al-Dawasir Province, KSA, which in conjunction with the camel mating season. The CCC confirmed that the epidemiological surveillance field teams at the Ministry of Environment, Water and Agriculture

(MEWA) have detected a number of positive samples of MERS-CoV in camels. This case study aims to develop the capacity of trainees in the processes of public health infection control and prevention, based on a MERS-CoV outbreak investigation in Wadi Aldawasir - KSA. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreaks.

Measles Outbreak Investigation, Lebanon, 2018: a Teaching Case-Study Student´s Guide

Lina Chaito, Mona Beaini, Nada Ghosn

Abstract

Measles is a highly contagious vaccine-preventable disease that affects susceptible individuals and can lead to serious complications and death among young children. Despite the availability of a safe and effective vaccine in Lebanon, measles immunization coverage rates have fallen far below the recommended threshold that is necessary to prevent illness and outbreaks. Lebanon has witnessed several measles outbreaks in recent history. In 1997-1998, an outbreak in the north of Lebanon caused 980 measles cases and led to 3 deaths. In 2003-2007, annual epidemic waves were observed with recurring outbreaks every 2 years in northern Lebanon. In 2013, a national measles outbreak occurred with 1,760 cases and 4 deaths. Since the first week of January 2018, the country experienced another large measles outbreak. This case study aimed to develop competencies in analyzing measles surveillance data based on a measles outbreak in Lebanon in 2018. This case study is based on the actions taken by the Ministry of Public Health to respond to the outbreak and limit its spread. It simulates outbreak investigation and focuses on analyzing surveillance data, communicating findings, and identifying strengths and weakness of surveillance systems. This case study is designed for training basic level field epidemiology trainees or any other health care workers working in public health-related fields. It can be administered in 2-3 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating an outbreak in preparation for the actual real-life experience of such outbreaks.

Risk Factors of Stillbirths: A Teaching Case-Study

Abdulwahed Al Serouri, Maha Obadi, Mohammad Al Amad, Ratiba Taher, Mohammed Qayad, Yousef Khader

Abstract

Stillbirth has been referred to as the ‘silent epidemic’ with more than 7,178 deaths a day. The stillbirth rate in developing countries is approximately 10 times that of developed countries (29 vs. 3 per 1000 births). The United Nations´ Every Newborn Action Plan has set a goal of 12 stillbirths per 1000 births by 2030 for all countries. Although, the causes of stillbirth are complex as there are many contributing and interacting factors, the majority of stillbirths are preventable. The stillbirth rate in Yemen is 29 per 1000 live birth which is the highest among the Arabic countries. Despite such high stillbirth rate, there is scarcity of data from Yemen on stillbirth and its risk factors. This case study is designed as hand-on tool for training advanced field epidemiology residents and

public health trainees to consolidate their knowledge and improve their public health practices to design, conduct, analyse, interpret and report findings from a case-control study. The case study can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in designing and analysing data to make evidence-based recommendations to help decisions making on tackling similar public health problems.

Acute Flaccid Paralysis (AFP) Surveillance System in Lebanon: A Teaching Case-Study

Hala Abou Naja, Nada Ghosn

Abstract

Lebanon has been declared polio-free since 2002. In 2003, following an imported polio case, national campaigns succeeded to contain the virus with no further cases. Since 2013, the risk of poliovirus importation became concrete. Several risk factors linked to the Syrian crisis were illustrated including wild poliovirus type 1 outbreak in Syria in 2013-2014, huge Syrian population influx into Lebanon due to insecurity, and circulating vaccine-derived poliovirus type 2 (cVDPV2) outbreak in Syria in 2017. Hence, there is continuous need to enhance Acute Flaccid Paralysis (AFP) surveillance to timely detect any imported poliovirus for the implementation of needed response. The goal of the case study is to build the capacity of Field Epidemiology Training Program (FETP) residents and other health professionals in the area of AFP reporting and prepare health care staff to any polio importation into the country. This case study can be administered in 2-3 hours.

An Outbreak of Multi-Drug-Resistant Tuberculosis Cases Amongst the Same Family Living in a Rural Area in Morocco, July-2017: A Teaching Case-Study

Iham Dahbi, Houda Moumni, Souaad Hassani, Assarag Bouchra, Adnan Tazi

Abstract

Multidrug-resistant tuberculosis (MDR-TB) is a public health priority in Morocco, especially after the medical delegation of the province was acknowledged about confirmed MDR-TB cases. An investigation was conducted in Morocco to identify the characteristics of the reported cases and evaluate the undertaken response measures. Information about confirmed MDR-TB cases was collected by the Epidemiology Department of Health via the consultation registry and medical records. Additionally, a home survey with interviews of cases and contacts defined according to the National Tuberculosis Control Program. A total of eight MDR-TB cases were diagnosed (bacteriologically confirmed) from the same family living in a rural area. All cases had a tuberculosis contagion notion and were seronegative for the acquired immunodeficiency virus. The objective of this case study is to build the capacity of trainees on investigating outbreaks. The case study is designed for novice field epidemiology trainees. The case study can be
completed in 3-4 hours.

Keywords: Multidrug-resistant tuberculosis; response measures.

Investigation and Control of Measles Outbreak in Puli-Khumri and Baghlan-Markazi Districts, Baghlan Province, Afghanistan: A Teaching Case-Study

Khwaja Mir Islam Saeed, Nooria Atta, Tawfiqulhakim Nazri

Abstract

Measles is a highly contagious viral disease that remains a significant cause of death among young children globally despite the availability of a safe and effective vaccine. Measles is transmitted via droplets from the nose, mouth, or throat of infected persons, and initial symptoms include a high fever, runny nose, bloodshot eyes, and tiny white spots on the inside of the mouth. Several days later, a rash develops, starting on the face and upper neck and gradually spreading downwards. Routine measles vaccination for children, combined with mass immunization campaigns in countries with low routine coverage, are key public health strategies to reduce global measles deaths. In Afghanistan, 25,000 cases were reported in 2017 of which 85% were among children under the age of 10. These cases span over 20 of the 34 provinces across Afghanistan, with the worst affected provinces being Kabul, Paktika, Kunar, Badghis, and Ghor. The majority of outbreaks are reported, investigated, and responded to throughout recent years in the country. This current outbreak of measles with an almost two-year duration is investigated and reported from Baghlan province. The goal of this case study is to develop competencies and consolidate understanding of participants to investigate and control outbreaks. This case study stimulates the students to investigate and control a measles outbreak and critically appraise an epidemic report. The case study is designed for training novice field epidemiology trainees. The case study can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in investigating outbreaks and identifying factors affecting outbreaks.

Keywords: Measles, outbreak, vaccination

Real-Time Surveillance of Infectious Diseases and Other Health Conditions During Iraq's Arbaeenia Mass Gathering: A Teaching Case-Study

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Objective: This study aimed to describe the common illnesses and health conditions affecting people during the Arbaeenia mass gathering in Iraq in 2016.

Methods: A total of 60 data collectors took part in the field data collection over a period of 11 days, from November 12, 2016 to November 22, 2016. Data were collected from 20 health outlets along the major route from Najaf to Karbala (10 health facilities in each governorate). Two digital forms, the Health Facility Survey and the Case Survey, were used for data collection.

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facilities and presented with one or more conditions. Of a total 41,689 patients, 58.5% (n=24,398) had acute or infectious conditions and symptoms, 33.1% (n=13,799) had chronic conditions, 23.9% (n=9974) had traumas or injuries, 28.2% (n=11,762) had joint pain related to walking long distances, and 0.3% (n=133) had chronic dermatologic conditions.

Conclusions: The Arbaeenia mass gathering in 2016 exerted a high burden on the Iraqi health care system. Therefore, efforts must be made both before and during the event to ensure preparedness, proper management, and control of different conditions.

Keywords: Arbaeenia; Iraq; mass gathering; surveillance.

A Novel Coronavirus Outbreak: A Teaching Case-Study

Haitham Bashier, Yousef Khader, Ruba Al-Souri, Ilham Abu-Khader

Abstract

Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV2). It was first identified in December 2019 in Wuhan, Hubei, China, and has resulted in an ongoing pandemic. Common symptoms include fever, cough, fatigue, shortness of breath, and loss of smell and taste. While the majority of cases result in mild symptoms, some progress to acute respiratory distress syndrome (ARDS) possibly precipitated by cytokine storm, multiorgan failure, septic shock, and blood clots. The time from exposure to onset of symptoms is typically around five days, but may range from two to fourteen days.

This case study stimulates the trainees to consolidate their knowledge and improve their public health practices to detect, timely respond to threating pandemics and control/prevent them. Case studies allow trainees to build competencies in analyzing and interpreting data in order to make decisions on containing similar public health threats with consideration of the political context. The case study is designed for the training of intermediate and advanced Field Epidemiology trainees; it can be administered in 6 hours.

Keywords: Coronavirus, Epidemic, Novel Virus

Investigation of A Haemorrhagic Disease with Unknown Origin In Kyrandia, 2005: A Teaching Case-Study

Nassma Mohy Eldeen Altayeb, Andrey Kuznetsov, Wessam Mankoula, Erasmus Gidimadjor, Mageda Kihulya, Barbara Buerkin, Dina Ramadan Lithy

Abstract

A number of diseases are classified as hemorrhagic disease and differences between them relate to etiologic factors, being infectious or non-infectious, geographic distribution, incidence, reservoir, transmission method, and clinical symptoms. In Kyrandia, cases of a human haemorrhagic disease have been reported since 1940, yet recently, the reported cases have been increasing in number due to several factors. In October 2005, the Ministry of Health (MOH) reported fatal laboratory-confirmed cases in the

State of Shanta in Kyrandia, where a total of 605 cases of outbreak-related illness were reported during that period. The goal of this case study is to build the capacity of trainees to investigate hemorrhagic disease outbreaks of an unknown origin. This case study is based on real events with some fictitious elements. Details from the original outbreak investigation have been modified to enhance the learning objectives and support the instructional goals. This case study aims to stimulate students to identify the source of a disease outbreak, analyze surveillance data, eliminate the outbreak, and develop strategies to prevent future outbreaks. The case study also aims at training students to evaluate existing prevention strategies, describe newly emerging infections, learn more about known diseases, and appropriately address public concern. This case study is designed for the training of basic level field epidemiology trainees or any other health care workers working in public health-related fields. The case study can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in analysing available data in order to identify triggering factors for viral haemorrhagic disease outbreak.

Keywords: Haemorrhagic disease, outbreak, Kyrandia

Evaluation Of Influenza Sentinel Surveillance System, Saudi Arabia, 2017-2018: A Teaching Case-Study

Mohamed Nageeb Abdalla, Muhannad Almalki, Sami S. Almudarra

Abstract

Influenza is a disease of global importance and concern. The World Health Organization (WHO) Global Influenza Strategy for 2019-2030 categorizes influenza as a global threat, where national prevention and control programs play a substantial role in achieving the strategy's goals. Strengthening Influenza surveillance activities is a core function of control and preparedness for future pandemics. The Kingdom of Saudi Arabia (KSA) is very much concerned with such epidemic-prone diseases, given the annual gathering of Muslims from all over the world for Hajj and Umra. In response, the Saudi Public Health authority established a National Influenza Surveillance System. Initial and periodic evaluation of such programs leads to improvement to their performance and quality. This case-study aims to build capacity of trainees in the processes of public health surveillance evaluation and to develop essential trainee's competencies in surveillance programs evaluation. It is intended to inform Field Epidemiology Training Program (FETP) residents of the know-hows of being engaged in evaluation tasks, in particular evaluation of surveillance programs. The case study is designed for training novice field epidemiology trainees. The case study can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in evaluating public health surveillance programs at local or national levels including analysis and interpretation of data. It is also designed to improve their practice of teamwork concepts.

Keywords: Influenza, Evaluation, Public Health Surveillance, Saudi Arabia

An Outbreak of Hepatitis E in A Rural Area of Islamabad, Pakistan in April-May 2019: A Teaching Case-Study

Nosheen Ashraf, Wasif Malik, Mumtaz Ali Khan, Jamil A. Ansari, Aamer Ikram

Abstract

Hepatitis E is an acute viral infection caused by the Hepatitis E virus (HEV). An estimated 20 million HEV infections occurred worldwide and 3.3 million became symptomatic. The transmission route of the virus is fecal-oral via water contamination. This disease is prevalent in low- and middle-income countries with no proper sanitation system, water supply, and hygiene and health services. Sporadic cases of Hepatitis E occur throughout the year in Pakistan. Pakistan is a highly endemic area for Hepatitis E and small epidemics occur in different cities of the country. HEV is transmitted when sewage water mixes and contaminates the water supply pipelines due to broken pipelines or open drainage systems. Anti-HEV IgM and IgG antibodies are the serological markers to confirm the cases, also HEV's RNA is a useful epidemiological marker. The incubation period of the virus ranges from 2 to 10 weeks, with an average of 40 days. The goal of this case study is to develop student's capabilities in investigating outbreaks. This

case study will help students learn about the methods of outbreak investigation and the features of an outbreak which could help them analyze surveillance data in order to find the causes of an outbreak. The case study will also help students determine the environmental factors leading to disease outbreaks, the significance of creating public awareness about an outbreak and the necessary preventive measures, multi-sectorial involvement towards preventing disease outbreaks in the community, and creating contingency action plans for outbreaks.

Outbreak of Rift Valley Fever, River Nile State, Sudan - 2019: A Teaching Case-Study

Shahd Osman, Amal Taha, Rawia Osama, Alaadein AlKhidir, Rehab Abdallah

Abstract

Rift Valley Fever (RVF) is a viral zoonosis disease transmitted through a mosquito vector that primarily infects animals but also has the capacity to infect humans. Most human infections are caused by direct or indirect contact with the blood or organs of infected animals. Sudan, like many African countries, is considered endemic for RVF. In 2019, an outbreak took place at the River Nile State of Sudan and continued for six months resulting in the spread of RVF into other states. The goal of this case study is to strengthen the capacity of trainees in outbreak investigation of a zoonotic disease using an integrated approach. This case study examines the factors that triggered the RVF outbreak and consequently resulted in its spread. It allows participants to discuss risk factors and the importance of integrating response efforts including surveillance and outbreak investigation and control. The case study is designed for training novice field epidemiology trainees. The case study can be administered in 3-4 hours.

Keywords: Rift Valley Fever, Outbreak, Zoonotic diseases, One health, Sudan

Outbreak Of Cholera in Iraq During a Humanitarian Crisis, 2015: A Teaching Case-Study

Omar Al-Hadeethi, Haneen Al-Jawaldeh

Abstract

Cholera is an infectious disease caused by the consumption of contaminated food or water with the bacterium Vibrio cholerae. V. cholera has many subgroups; only two (O1 and O139) of them can lead to outbreaks. Recent cholera outbreaks were all caused by V. cholera O. The availability of safe water and sanitation is vital for controlling

transmission of cholera and other waterborne diseases. Several Cholera outbreaks were reported in countries of the Eastern Mediterranean Region (EMR) in the last decade, including Afghanistan, Djibouti, Iraq, Pakistan, Sudan, Somalia and Yemen. Cholera is endemic in Iraq; it was first reported in Basrah, in the year 1820. Over the last 5 decades, Iraq experienced many epidemics all together because of underdevelopment and infrastructure damage as a result of wars and conflicts. In addition to bad sewage system, shortages in the supply of safe water exacerbated several outbreaks in the last decade. In Iraq, cholera outbreak was declared by the Iraqi Ministry of Health (MoH) in 2015, during a humanitarian crisis. The outbreak continued to rapidly spread throughout the country, and by October 2015, a total of 1,656 cases were confirmed. This case study is based on the actions taken by the Iraqi MoH during this outbreak to prevent the spread of cholera, where it targeted around 255,00 displaced persons above the age of 1 with a 2-dose oral cholera vaccine (OCV). Individuals who received vaccines were in refugee camps, internally displaced persons camps, and collective centers. This case study is designed to train basic level field epidemiology trainees or any other health care workers who work in fields related to public health and develop their skills to investigate and respond to outbreaks based on cholera outbreak in Iraq, in 2015. It is administrable in 2-3 hours. The case study is used as an optional training material, provides the trainees with the expertise to investigate an outbreak in preparation for the actual real-life experience of such outbreaks.

Keywords: Outbreak, Cholera, vibrio Cholera, Humanitarian Crisis, Iraq

A Large-Scale Outbreak of Botulism Associated with A Traditional Celebratory Egyptian Fish Dish in Five Governorates - Lower Egypt, 2019: A Teaching Case-Study

Sherif Shamseldein, Mahmoud Azqul, Sahar Samy, Hanem Abdelraoof

Abstract

Botulism is a potentially fatal illness caused by the botulinum toxin. Foodborne Botulism is characterized by symmetric descending paralysis of voluntary muscles that can progress to respiratory failure and death. On September 24, 2019, a large Botulism outbreak of 92 cases took place in five governorates in Lower Egypt and was associated with a traditional meal (Feseekh). Feseekh is celebratory Egyptian dish consisting of fermented salted fish that is kept under anaerobic conditions for a long period of time. Case series study was conducted with the sensitive case definition of anyone having neurological or gastrointestinal symptoms and a history of eating Feseekh in the last 10 days. The goal of this case study is to build the capacity of trainees in investigating outbreaks. This case study stimulates students to analyse surveillance data, critically appraise an epidemic report, and assess the epidemic contingency plan. The case study is designed for training Novice field epidemiology trainees and can be administered in 3-4 hours. Used as adjunct training material, the case study provides the trainees with competencies in analysing available data in order to identify triggering factors for Botulism outbreaks in Egypt and using information to develop a risk map using relevant software.

Keywords: Botulism, outbreak, Egypt

The Trend of Measles in Afghanistan

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Abstract

Measles is a highly contagious disease-prone vaccine-preventable disease characterized by a maculopapular rash. It continues to be a common and sometimes fatal disease in developing countries. In Afghanistan, it causes many outbreaks in areas with low vaccine coverage. Measles itself is one of the leading causes of death among young children, even though a safe and cost-effective vaccine is available. In July 2018, the Ministry of Public Health reported 198 outbreaks and 6654 confirmed measles cases. The cause of the increasing number of outbreaks and cases is low immunization coverage and poor public health services. This case study helps to teach students to analyze surveillance data, critically appraise epidemic report and assess the epidemic contingency plan. It is designed for the training of basic level field epidemiology trainees or any other health care workers working in outbreaks of measles and other public health-related fields. It can be administered in 2-3 hours.

Research Digests

The First Middle East and North Africa Expert Consensus Recommendations for the Management of Advanced Colorectal Cancer

Introduction

Colorectal cancer (CRC) is the third most common cancer and the second deadliest. Unfortunately, in the Middle East and North Africa (MENA) region, the number of CRC cases has been increasing in recent years and is expected to double by 2030. This is particularly notable in Jordan, Bahrain, and Algeria, where CRC is among the most frequently diagnosed types of cancer. In Jordan, it is the most frequent cancer in men and the second most common in women, while in Bahrain, Qatar, and Algeria, it is the second most common cancer in both sexes. The incidence rate of CRC in Lebanon has increased by 4.36% in males and 4.45% in females between 2005 and 2016, with high age-specific incidence rates observed between the ages of 40 and 49 years, and with 77.4% of patients being aged 50 or above. Tunisia also reported an increase of incidence by 5.3% for males and 2.6% for females between 1993 and 2007.

The absence of recent and clear epidemiological data and guidelines for treating metastatic CRC (mCRC) in the MENA region hinders the management of patients with this form of cancer and makes it difficult to accurately assess its burden. To address this issue, a group of 24 experts in the field of gastrointestinal oncology from the MENA region convened and created the first consensus recommendations for the management of patients with advanced CRC. The panel included experts from Saudi Arabia, Algeria, Jordan, Lebanon, Egypt, United Arab Emirates, Morocco, Qatar, Iran, Iraq, Oman, and Syria, as well as a chairman-expert from France. Together, they formulated 47 statements covering epidemiology, screening, biomarkers, and treatment, in an effort to standardize and unify the screening and management of this cancer in the region, improve outcomes for patients, and help control the burden of CRC.

Cancer Registration in the Middle East, North Africa, and Turkey (MENAT) Region: A Tale of Conflict, Challenges, and Opportunities

Introduction

Cancer is a major public health issue across the world, particularly in low and middle-income countries. The MENAT region, which

encompasses Middle Eastern and North African countries along with Turkey, is expected to see a 60% increase in the cancer burden by 2030, which is projected to be the highest increase in the world. This is attributed to factors such as recurring conflicts, shifting demographics, and increased environmental pollution. To effectively address this growing cancer burden, accurate cancer registration is crucial and must be integrated into well-formed national and regional cancer control plans.

The role of cancer registries is to gather data on the incidence and prevalence of cancer, as well as survival and mortality rates. This data informs cancer control strategies, including prevention, screening, early diagnosis, and treatment. Cancer registries also provide data for epidemiological research studies and feasibility assessments for clinical trials and can be used for health system analysis and quality indicator monitoring. They are also an important tool for evidence-based cancer management in high-income countries.

However, in the MENAT region, the capacity and resources for cancer registration are limited and impacted by multiple challenges. To address these challenges, the Initiative for Cancer Registration in the MENAT (ICRIM) organized a workshop with registry managers, policy makers, and international agencies from 19 countries in the region. The workshop outcome included recommendations to improve the capacity for cancer registration in the MENAT region. The purpose of this digest is to highlight important findings from this study, which was published in November 2022 in Frontiers of Oncology.

Effects of Ramadan Fasting on Glycemic Control Among Patients with Type 2 Diabetes: Systematic Review and Meta-analysis of Observational Studies

Introductio

Type 2 diabetes mellitus (T2DM) is a chronic condition that poses a significant public health concern globally due to its increasing prevalence. It is a major cause of blindness, kidney failure, heart attacks, stroke, and lower limb amputation. Accordingly, managing blood sugar levels is essential for people with T2DM, and this often requires lifestyle changes including a healthy diet and regular physical activity, as well as compliance to anti-diabetic medications and close follow-up with physicians. Fasting in patients with T2DM has long been a controversial issue. Each year, and for an entire month, the Muslim population practices Ramadan fasting, which involves abstaining from food and drink from sunrise to sunset. Despite the exemption of Muslims with physical illnesses, including T2DM, from fasting, many still choose to fast, sometimes without medical consultations and even against medical recommendations.

The “Effects of Ramadan Fasting on Glycemic Control Among Patients with Type 2 Diabetes: Systematic Review and Metaanalysis of Observational Studies” published December 2022 in Diabetes Therapy, aimed to investigate the effects of Ramadan fasting on glycemic control among patients with T2DM of various age groups. The meta-analysis study specifically aimed to answer two questions: (1) What are the effects of Ramadan fasting on glycemic control biomarkers such as HbA1c and fasting blood glucose (FBG) in patients with T2DM? (2) How does fasting during Ramadan influence body weight of these patients?

Cross-cultural Comparison of Mental Illness Stigma and Helpseeking Attitudes: A Multinational Population-based Study from 16 Arab Countries and 10,036 Individuals

Introduction

Mental health is a significant public health concern worldwide, including Arab countries. Despite the high prevalence of mental disorders within the Arab population, many remain untreated, partly due to the unfavorable attitudes towards seeking help and the stigma surrounding mental illness. Cultural and societal factors play a vital role in how people perceive and address mental health problems, and understanding these factors is crucial for developing effective, culturally tailored mental health promotion programs.

There is limited research on mental illness stigma and help-seeking attitudes in Arab countries, with most studies being small-scale and focused on specific groups like university students.

Cross-country comparisons are scarce, and certain countries in the region have not been studied at all. While there are similarities among Arab countries in terms of language, culture, and religion, social, political, and economic differences exist. Such differences may influence attitudes towards mental illness and help-seeking behavior.

The “Cross-cultural comparison of mental illness stigma and help-seeking attitudes: a multinational population-based study from 16 Arab countries and 10,036 individuals” study, published December 2022 in Social Psychiatry and Psychiatric Epidemiology, explored knowledge and attitudes towards mental illness, as well as help-seeking attitudes, causal attributions, and recommendations for help-seeking across 16 Arab countries: Algeria, Egypt, Jordan, Kingdom of Saudi Arabia, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Sudan, Tunisia, United Arab Emirates, and Yemen. The study investigated factors related to attitudes towards seeking professional psychological help.

The multinational cross-sectional survey was part of a large-scale collaboration project, called the Stigma of Mental Problems in Arab Countries (IMPACT) Project, conducted from June to November 2021. Convenience sampling was used to invite Arab-speaking individuals aged 18 years or older, from the public. Participants were all originating from and residing in an Arab country.

Stroke Services in the Middle East and Adjacent Region: A Survey of 34 Hospital-based Stroke Services

Introduction

Stroke is a significant health concern worldwide, leading to a high rate of death and disability. Despite becoming the fifth leading cause of death in high-income countries (HICs) due to successful prevention and treatment strategies over the past five decades, stroke retains its place as the second most common cause of death in low to upper middle- income countries (LMICs).

This discrepancy is clearly seen in the Middle East and North Africa (MENA), home to an estimated 411 million people, where the incidence of stroke seems to be on the rise. The incidence of stroke in the MENA region varies from 29.8 per 100,000 people in Saudi Arabia to 57 per 100,000 in Bahrain. The 28- day case mortality rate also ranges considerably from 10% in Kuwait to 31.5% in Iran. Even though these numbers are similar to

those in HIC nations, the impact is more pronounced in MENA due to its younger population. The MENA-Stroke and Interventional Neuro-Organization (MENA-SINO), a group of stroke experts from 19 MENA and adjacent countries (Bahrain, Egypt, Iran, Indonesia, Iraq, Jordan, Kuwait, Lebanon, Malaysia, Oman, Pakistan, Saudi Arabia, Sudan, Turkey, Thailand, United Arab Emirates, Yemen, and Qatar), aims to improve education, research, and healthcare for stroke in the region. While progress has been made in enhancing stroke care in MENA, there is an ongoing need for an integrated regional stroke system, both at local hospitals and across the region. A recent study was conducted to evaluate the state of readiness of stroke programs in the MENA and surrounding regions (MENA+) to treat acute stroke.

A Global Research Priority Agenda to Advance Public Health Responses to Fatty Liver Disease

Introduction

Non-alcoholic fatty liver disease (NAFLD), a condition estimated to affect approximately 38% of adults globally, is a silent epidemic that is quietly yet profoundly reshaping our healthcare landscape. This condition does not merely affect individuals; it reverberates through communities and societies, generating significant public health and economic challenges that we are only beginning to grasp. As our understanding of NAFLD continues to evolve, it is clear that a robust multidimensional response from the global health community is urgently needed. While recent research efforts have brought much-needed attention to this disease, there is a pressing need to systematically organize and prioritize our research endeavors to effectively tackle NAFLD. The aim of this paper, published in Journal of Hepatology, titled “A Global Research Priority Agenda to Advance Public Health Responses to Fatty Liver Disease,” is to cocreate an aligned, prioritized research agenda for NAFLD, providing a clear roadmap for liver health community to collaborate and focus their efforts. This agenda emerges from an in-depth process involving multiple rounds of expert reviews and feedback, analysis, and inperson debates, mirroring the very multidisciplinary collaboration it seeks to foster. In creating this consensus-built research agenda, the study aspires to foster a step-change in addressing NAFLD, by not just treating it as a medical condition, but mitigating its individual and societal harms. More importantly, the objective is to transform our response to this disease, shifting our focus from merely managing the consequences to proactively altering its natural history through effective prevention, early identification, timely treatment, and comprehensive care. Methodology The study utilized a comprehensive Delphi methodology to create an informed research agenda to address NAFLD. A diverse panel of experts that included EMPHNET’s Director of the Center of Excellence for Applied Epidemiology was established for this process. They developed research priorities around seven key topics, which were later narrowed to six following detailed discussions. The collected responses were carefully analyzed and used to revise the research priorities, resulting in a research agenda grounded in expert consensus, paving the way for a coordinated global response to NAFLD.

Sugar Reduction Initiatives in the Eastern Mediterranean Region: A Systematic Review

Introduction

Countries in the Eastern Mediterranean Region (EMR) are experiencing a nutrition transition with a

significant increase in sugar consumption. This is linked to an alarming surge in noncommunicable diseases (NCDs). Sugars are classified as Total Sugars (TS), Added Sugars (AS), and Free Sugars (FS), with the World Health Organization (WHO) recommending reducing FS to less than 10% of total energy intake (EI). The WHO Regional Office for the Eastern Mediterranean (WHO EMRO) set policy goals aligning with the WHO's regional plans for 2020–2030 and obesity prevention framework for 2019–2023. Despite these efforts, a comprehensive evaluation of national sugar reduction strategies across the EMR is lacking. "Sugar Reduction Initiatives in the Eastern Mediterranean Region: A Systematic Review" published in Nutrients, seeks to identify and assess existing initiatives, as well as evaluate their impacts when data permits. This digest summarizes the findings and implications, highlighting the importance of continued efforts and collaboration in addressing health challenges related to sugar consumption in the EMR. A comprehensive literature search of 11 electronic databases and grey literature identified 162 documents. Of which, 72 were peer-reviewed articles, and 90 were documents/ sources obtained from the grey literature, webpages, links, references from country contacts through a questionnaire, and references from within articles.

Nutrition Profile for Countries of the Eastern Mediterranean Region with Different Income Levels: An Analytical Review

Introduction

As of 2016, over 1.9 billion adults were overweight globally, with more than 600 million of them having obesity. Children are not immune to this epidemic. By 2020, around 39 million children under five were overweight, marking a significant increase (5.6 Million) since the start of the millennium. Meanwhile, malnutrition presents its own set of challenges. Globally, roughly one in three individuals suffer from some form of malnutrition. Symptoms range from stunting and wasting to micronutrient deficiencies. Such malnutrition patterns in childhood, whether it's undernutrition or excessive consumption, pave the way for adulthood obesity, overweight, and NCDs. Alarmingly, as of recent global estimates, approximately 149 million children under five are stunted, 45 million are wasted, and 39 million are overweight.

Malnutrition and micronutrient deficiencies present grave health challenges in the Eastern Mediterranean Region (EMR). Anemia, often resulting from iron deficiency, is widespread, particularly among women and children. This deficiency manifests in fatigue, dizziness, diminished work capacity, and heightened vulnerability to infections. Pregnant women with anemia face miscarriages, stillbirths, preterm deliveries, and infant mortality. In 2019, the World Health Organization's Global Health Observatory (WHO-GHO) reported alarmingly high rates of anemia in the region, with nations like Yemen, Somalia, Pakistan, and Afghanistan leading the dire statistics. By endorsing the WHO Strategy on Nutrition for the EMR (2020–2030) in October 2019, the EMR countries committed to strengthened action on nutrition to achieve food security, end all forms of malnutrition, and improve nutrition throughout the life course by 2030.

This digest is based on a paper, titled "Nutrition

Profile for Countries of the Eastern Mediterranean Region with Different Income Levels: An Analytical Review", published in "Children", that delves into the nutritional status of various income groups in the EMR, particularly focusing on metrics like child malnutrition rates for children under five, infant and young child feeding practices, and the prevalence of anemia in women of reproductive age.

Data related to overweight and obesity in children, adolescents, and adults were primarily derived using age-standardized estimates, while the Body Mass Index (BMI) was employed as a metric for defining overweight and obesity. The paper sourced demographic and economic indicators from the World Bank, and nutrition-specific data from the WHO-GHO and the Eastern Mediterranean Health Observatory. The study also undertook a comprehensive review of existing nutrition policies and strategies within the EMR, tapping into databases like the WHO Global database and regional health observatories. Countries in the EMR were grouped into income categories based on the World Bank's criteria. To discern patterns, the study utilized a weighted average approach, focusing on key indicators like child malnutrition and anemia rates across various income groups.

Policy Briefs

Strengthening Cancer Registries in the Eastern Mediterranean Region

Executive Summary

The burden of cancer in the Eastern Mediterranean Region (EMR) is experiencing an alarming surge. Population-Based Cancer Registries (PBCRs) play a vital role in planning national cancer control and prevention strategies, monitoring and evaluating cancer care services, and conducting epidemiological and clinical research. However, the EMR faces several challenges in establishing and maintaining high quality PBCRs, including limited coverage, poor governance, political instability, shortage of resources, and insufficient funding.

This policy brief outlines the importance of PBCRs in cancer control planning, the existing barriers to their development, and potential solutions to enhance the quality and use of cancer registry data in the region. By addressing these challenges and leveraging available opportunities, the EMR can make significant progress in cancer control and planning, ultimately improving health outcomes for millions of people in the region.

Key policy recommendations include empowering EMR cancer registries, expanding the use of PBCR data, collaborating with international organizations, establishing continuous staff training programs, encouraging resource sharing among countries, mandating cancer as a reportable disease, promoting regional cooperation, ensuring policymakers' commitment to cancer registration, and migrating to paperless electronic data flow whenever possible.

A counterfactual analysis highlights the potential consequences of inaction in cancer registry improvement, the risks and challenges that could arise without intervention, and the imperative for action in cancer control and prevention. Timely implementation of these recommendations will prevent the further widening of health disparities and inequities in the region, ultimately contributing to better cancer outcomes for the EMR's population.

Barriers to Colorectal Cancer Screening in the Eastern Mediterranean Region

Introduction

Colorectal cancer (CRC) is a significant and growing health concern in the Eastern Mediterranean Region (EMR), with incidence rates and prevalence highlighting the urgent need for effective prevention and early detection strategies. The variable impact of CRC across the region and the critical role of screening in mitigating morbidity and mortality underscore the importance of understanding barriers to effective screening. A recent scoping review, published in the Journal of Gastrointestinal Oncology, conducted through the application of the Theoretical Domains Framework (TDF), has provided valuable insights into multilevel barriers to CRC screening within the EMR. These barriers exist at the individual, public, provider, and health system levels, with notable challenges in the domains of knowledge, emotion, environmental context, resources, and beliefs about consequences.

Digital Solutions for Reproductive, Maternal, Neonatal, and Child Health

Executive Summary

The Eastern Mediterranean Region is experiencing significant shifts in Reproductive, Maternal, Neonatal, and Child Health (RMNCH) due to the profound influence of digital health innovations. Yet, the promise of digital health in RMNCH also comes with its set of challenges, particularly in the domains of human rights and privacy. This policy brief emphasizes the vast potential of digital health to redefine RMNCH within the EMR. It offers an in-depth analysis of regional digital health endeavors and delves into the associated challenges, especially those related to privacy and the broader implications of human rights. Addressing these concerns holistically is essential for the EMR to harness digital health for comprehensive and rights aware RMNCH care effectively. Recommendations in the brief focus on strengthening the region's digital infrastructure, developing culturally and linguistically appropriate digital health tools and ensuring compatibility with existing health systems. Furthermore, the importance of fostering public-private partnerships, emphasizing public health goals, and providing continuous training to healthcare professionals on digital tools is highlighted. It is also recommended to integrate feedback mechanisms for the continuous improvement of digital strategies. Given the transformative potential of digital health for RMNCH in the EMR, it is imperative to heed these recommendations. Adopting these strategies will ensure that the EMR not only enhances its RMNCH care but also emerges as a beacon of innovation, rights conservation, and integrated healthcare for the rest of the world to observe and emulate.

Sustaining Meaningful Multisectoral Collaboration for One Health: Conditions for Success

Executive Summary

The One Health approach recognizes the interconnectivity of human, animal, and environmental health and emphasizes the importance of a collaborative and multisectoral response. This brief examines the pressing need and potential benefits of implementing this approach in the Eastern Mediterranean Region (EMR), a region uniquely challenged by urbanization, political instability, environmental disruptions, and zoonotic diseases.

The EMR's specific challenges and complexities necessitate the One Health approach. However, the lack of political will and multisectoral

collaboration, communication barriers, legal complexities, and institutional silos hinders its implementation.

The brief outlines a roadmap for successful multi-sectoral collaboration, including fostering political commitment, policy formulation, sustainable financing, coordinated program development, institutional collaboration, community engagement, and alignment with global challenges and long-term goals.

Key recommendations include fostering interdisciplinary collaboration, strengthening the political and policy framework, enhancing financing mechanisms, building capacity and education, improving data sharing and technology utilization, promoting research and development, encouraging community engagement, and aligning with global collaboration and standards.

In conclusion, this brief serves as both an analysis and guide for nations striving to implement the One Health approach in the EMR effectively. By recognizing the interconnections between different facets of health and providing concrete recommendations, the document offers a multifaceted path towards achieving a more resilient and effective health infrastructure in the region. The executive summary encapsulates the urgency, complexity, and potential strategies for this endeavor by emphasizing the importance of integrated efforts across disciplines.

GHD|EMPHNET: Working Together for Better Health

The Eastern Mediterranean Public Health Network (EMPHNET) is a regional network that focuses on strengthening public health systems in the Eastern Mediterranean Region (EMR) and beyond. EMPHNET works in partnership with ministries of health, non-government organizations, international agencies, private sector, and relevant institutions from the region and the globe to promote public health and applied epidemiology. To advance the work of EMPHNET, Global Health Development (GHD) was initiated to build coordination mechanisms with partners and collaborators. Together, GHD|EMPHNET is dedicated to serving the region by supporting efforts to promote public health policies, strategic planning, sustainable financing, resource mobilization, public health programs, and other related areas.

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